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## FOREWORD

Since the end of the war the amount of material contributed to DIS has increased so much that the size of the volume is approximately double what it was in 1945. The most rapid increase occurred between 1948 and 1951. During the past three years the number of pages has remained about the same; and in fact this issue is twelve pages shorter than DIS-26. It seems that we have reached a leveling-off point in the amount of material received for each issue. I sincerely hope this is so, as it would be difficult for us to handle a larger issue. Any further increase in number of pages would necessitate a change in the binding procedure and would in other ways add to the labor of preparation.

I should again like to point out that DIS is not well suited for the publication of extensive tables or elaborate drawings, and to request that contributors limit such material to a minimum.

M. DEMEREC

Cold Spring Harbor  
January 12, 1954



## STOCK LISTS

## Key to abbreviations:

- (1) number in parentheses after Df, In, etc., indicates the chromosome or chromosomes involved in rearrangement  
 indicates attached X's or attached X-Y  
X<sup>c</sup> closed X  
 Df deficiency  
 Dp duplication  
 In inversion  
 T translocation  
 Tp transposition  
 / separates two homologous chromosomes  
 ; separates two nonhomologous chromosomes, and X from Y  
 , separates aberration from mutants carried with it  
 & is used to indicate two components of the \$ requiring selection  
 The letter l is underscored whenever necessary to distinguish it from the figure 1, as in lethal and when l indicates December.

AMHERST, MASSACHUSETTS: AMHERST COLLEGE

30 common stocks and the following unusual ones:

Wild Stocks

- 1 Canton-S: inbreeding, 62 generations on 53j28
- 2 Oregon-R: inbreeding, 123 generations on 53j28
- 3 Samarkand: inbreeding, 222 generations on 53j28
- 4 Oregon-R: inbred for 120 generations, mass culture since 53il5

Chromosome 1

- 5 y ct<sup>6</sup> f
- 6 y ct<sup>6</sup> ras<sup>2</sup> f
- 7 y sn<sup>50k</sup> ras<sup>2</sup>/+
- 8 y<sup>2</sup> sn<sup>3</sup> ras<sup>4</sup> m/C1B

Multichromosomal

- 21 bw; by<sup>46h</sup>
- 22 vg se<sup>50k</sup>

InversionsChromosome 2

- 9 a px or
- 10 Bl/Cy, cn<sup>2</sup> bw<sup>45a</sup> sp<sup>2</sup> or<sup>45a</sup>
- 11 l<sup>1076</sup>/In(2L)t, Roi
- 12 net b cn bw
- 13 or<sup>49h</sup>
- 14 sp<sup>2</sup> or<sup>45a</sup>
- 15 vg<sup>51h25</sup>

- 23 In(2L)t, shovel, In(2R)NS
- 24 S Sp Bl N-2, In(2R)G/Cy, cn<sup>2</sup> sp<sup>2</sup>
- 25 In(2L,R)40<sup>d</sup>/Cy, cn<sup>2</sup> sp<sup>2</sup>

Chromosome 3

- 16 bar-3
- 17 Hn<sup>RI</sup>
- 18 rsd
- 19 ru st ss ca
- 20 ss Su<sup>3</sup>-ss

AUSTIN, TEXAS: THE UNIVERSITY OF TEXASWild Stocks

- 1 Oregon-R
- 2 Stephenville

Chromosome 1

- 3 amx/C1B
- 4 B
- 5 ec ct<sup>6</sup> (s) car/y v f car
- 6 f fu/C1B f
- 7 fa
- 8 lz<sup>37h</sup>
- 9 lz<sup>37</sup> v f/C1B
- 10 lz<sup>A</sup>/C1B
- 11 lz<sup>g</sup> Bx<sup>2</sup>/C1B
- 12 lz<sup>g+</sup> Bx<sup>2</sup>/C1B (By CO of lz<sup>s</sup> f/lz<sup>g</sup> Bx<sup>2</sup>)
- 13 lz<sup>BS</sup>/C1B
- 14 lz<sup>BS</sup>/C1B v
- 15 pn<sup>2</sup>
- 16 ras
- 17 rb wa
- 18 rg
- 19 sc br wa<sup>a</sup> → R m f
- 20 sc<sup>2</sup> pn
- 21 sc v f lz<sup>y4</sup>/y
- 22 sc v (f) car
- 23 sn<sup>3</sup>
- 24 su<sup>2-s</sup> v
- 25 t<sup>3</sup>
- 26 v
- 27 v f B (or sn v B)/y v f car
- 28 v f su-f (v f su<sup>w-1</sup>)
- 29 v f<sup>e</sup> (v from CO, C1B)
- 30 v lz<sup>y4</sup>/y v f car
- 31 vs
- 32 w
- 33 w spl
- 34 w m f
- 35 wbf f<sup>5</sup>
- 36 wbf2
- 37 wbl
- 38 wh
- 39 wi f<sup>3</sup> bb<sup>N</sup>
- 40 wt fw
- 41 y ac v
- 42 y lz<sup>y4</sup>/y v car
- 43 y sc wa m f<sup>5</sup>
- 44 y w f B Bx<sup>2</sup>/C1B
- 45 y wcol spl
- 46 y<sup>2</sup> wa ec f
- 47 y<sup>34c</sup>
- 48 y<sup>542</sup> (Weslaco)
- 49 y<sup>Pan</sup>

Chromosome 2

- 50 al dp b pr c px sp/Cy
- 51 al S ho/Pm ds<sup>33k</sup>
- 52 b
- 53 b pr c px sp
- 54 bw
- 55 dp
- 56 dp<sup>o2</sup>
- 57 dp<sup>Nov</sup>
- 58 dp<sup>Rf</sup>/Pm ds<sup>33k</sup>
- 59 dp<sup>tx</sup> b/Cy
- 60 dp<sup>v1</sup>/Cy al<sup>2</sup> L<sup>4</sup> sp<sup>2</sup>
- 61 dp<sup>v2</sup>
- 62 L<sup>2</sup>/Cy
- 63 mi/Pm<sup>2</sup>
- 64 pd
- 65 pr
- 66 pr en
- 67 vg
- 68 vg<sup>ng</sup> (homozygous)
- 69 vg<sup>ni</sup>
- 70 vg<sup>np</sup>
- 71 vg<sup>nw</sup>/Cy

Chromosome 3

- 72 cu
- 73 D1<sup>13</sup>/In(3R)C, Sb e 1(3)e
- 74 ell
- 75 H<sup>32y</sup>/M<sup>e</sup>
- 76 jv Hn<sup>r</sup> h
- 77 M(3)/In(3R)C, e 1(3)e
- 78 ri p<sup>p</sup>
- 79 (ru)h th st cu sr e<sup>s</sup> ca
- 80 ru h th st p<sup>p</sup> cu sr e<sup>s</sup>
- 81 se ss ro
- 82 ss<sup>a-B</sup>
- 83 st
- 84 ve h th

Chromosome 4

- 85 ci sv<sup>n</sup>
- 86 gvl sv<sup>n</sup>

Deletions and Deficiencies

- 87 Df(2)bw<sup>5</sup> Cy, dp<sup>2</sup>
- 88 N<sup>8</sup>/In(1)dl-49, y Hw m<sup>2</sup> g<sup>4</sup>

Multichromosomal

- 89 lz<sup>37</sup>/C1B; bw (1;2)
- 90 lz<sup>g</sup>/C1B; bw (1;2)
- 91 sc br wa<sup>a</sup> → R m f; bw (1;2)
- 92 wcol; bw (1;2)
- 93 wa; st (1;3)
- 94 we; st (1;3)



- 95 wh; st (1;3)  
 96 w<sup>sat</sup>; st (1;3)  
 97 Cy/S; D/C<sup>III</sup>X (2;3)  
 98 gl<sup>2</sup>; gvl (3;4)  
 99 ve ca; ey (3;4)  
 100 v; Sa/Cy (1;2;3)  
 101 y w; net ed; gl<sup>2</sup>; gvl (1;2;3;4)  
 102 ptg; px pd; su-pd (1;2;3)  
 103 bw; T(1;4)w<sup>m</sup>S (1;2;4)

Inversions

- 104 In(1)AM/f B<sup>3</sup>  
 105 In(1)dl-49 y fa<sup>n</sup>  
 106 In(1)dl-49 y<sup>41</sup> v vs<sup>28</sup>  
 107 In(1)sc<sup>8</sup> w<sup>a</sup>  
 108 In(1)sc<sup>8</sup> w<sup>a</sup> B  
 109 In(1)sc<sup>9</sup> sc<sup>9</sup> Bx f t w<sup>a</sup>/In(1)  
     dl-49 w lz<sup>s</sup>  
 110 In(1)w<sup>m4</sup> m  
 111 In(1)y<sup>4</sup>  
 112 In(1)y<sup>4</sup> lz<sup>y4</sup>/y v car  
 113 In(1)y<sup>3le</sup> (303h)  
 114 In(1)y<sup>3le</sup>; Su-y<sup>3le</sup>/M<sup>e</sup>  
 115 In(1)y<sup>3le+</sup>  
 116 In(2LR)bw<sup>v291</sup>/Elpl (Dilute 1)  
 117 In(2LR)bw<sup>v30kl</sup>/Cy (?) al<sup>2</sup> lt<sup>3</sup>  
     L<sup>4</sup> ap<sup>2</sup> (Dilute 2)  
 118 In(2R)bw<sup>v30kl0</sup>/Cy  
 119 In(2IR)Gla/Cy

TranslocationsT(1:4)A

- 120 17 f  
 121 BS/y v f  
 122 w<sup>mA</sup> v  
 123 w<sup>mA</sup> m  
 124 w<sup>m5</sup> (UT 1938)

T(2;3)A

- 125 bw<sup>v4</sup>/Cy (Glass) (Rosy)  
 126 bw<sup>v5</sup>/Cy (Glass)  
 127 bw<sup>v30a</sup>/Cy  
 128 bw<sup>v30kl2</sup>/Cy (Dilute 4)  
 129 bw<sup>v30kl3</sup>/Cy (Dilute 5)  
 130 Pale (with w<sup>e</sup>) Cbn/Cy; DCR/CLAH  
 131 Pu/Blister-like (290210)  
 132 Pu/Cy; D  
 133 Pu/S pr (32112.16b)  
 134 Pu Pr/Cy C<sup>3X</sup>  
 135 Pu<sup>rv</sup>/Cy; D(32122.7.36e-401)  
     (duplicate)  
 136 S Pu<sup>rv</sup>/Cy; D (Pu reversed X-ray)  
 137 Xa/f j wt

T(2:4)A

- 138 34/Cy (will suppress Pu)  
 139 34/Pu (normal phenotype)

T(Y:2)A

- 140 T(Y:2)G/b lt bw  
 141 T(2;3;4)bw<sup>v30kl8</sup>/Cy

Miscellaneous and Special Stocks

- 142 ClB/41 (dusky)  
 143 M<sup>42d</sup> (from X-rayed w<sup>mT</sup>)  
 144 su<sup>3</sup> -s Eq/y f:=  
 145 v<sup>s</sup>/y<sup>2</sup> v f car (H. Bruneau)  
     (suppressor of v; 3/17/51)  
 146 y<sup>"48g8"</sup> ru h st p<sup>p</sup> ss e<sup>s</sup>  
 147 y lz ca (Beirut) 1733.2

BALTIMORE, MARYLAND: THE JOHNS HOPKINS UNIVERSITY

Note: See DIS-26, pp. 37-38.

BERKELEY, CALIFORNIA: UNIVERSITY OF CALIFORNIA(Department of Zoology)Wild Stocks

- 1 Canton-S (isogenic)  
 2 Florida-10 (iso '39; contains  
     In(3R)Payne)  
 3 Samarkand (inbred)  
 4 Oregon-R (contains Df(2R)c)  
 5 +3  
 6G Florida-26 (inbred)

Chromosome 1

- 100 B  
 101 Bx  
 102 br w<sup>e</sup> ec rb t<sup>4</sup>/In(1)sc<sup>8</sup> In(1)dl-49,  
     y<sup>3ld</sup> w<sup>a</sup> lz<sup>s</sup> B  
 103 car bb (with Y)  
 104 fa  
 105 fw<sup>H</sup>/y

106 kz  $g^2$  B/y  
 107 Df(1)N<sup>8</sup>/In dl-49, m<sup>2</sup> g<sup>4</sup>  
 109 sd mc  
 110 sx vb sy<sup>2</sup>/In(1)AM  
 113 v car  
 117 w  
 120 w<sup>e</sup> bb/C1B (with Y)  
 121 w<sup>e</sup> bb<sup>1</sup>/C1B (with Y)  
 123 y  
 124 y ac/y  
 125 y ac v  
 126 y ac sn<sup>3</sup>  
 127 y ac sc<sup>8</sup> w<sup>a</sup>  
 128 y ac w<sup>co</sup> sn<sup>2</sup>/y f:=  
 129 y ec v wy<sup>2</sup>  
 130 y Hw In(1) dl-49, v<sup>o</sup> m<sup>2</sup> f/C1B<sup>36d</sup>  
 131 y sc m f<sup>5</sup>  
 132 y sn<sup>3</sup>  
 133 y w  
 134 In(1)y, In(1)w  
 135 y w spl sn<sup>3</sup>/y f:=  
 156G y<sup>2</sup> cv v f  
 137 y<sup>2</sup> dvr<sup>2</sup> v f car/C1B (with Y)  
 140 X<sup>c2</sup> t/y f:=  
 141 X<sup>c2</sup> sn<sup>3</sup>  
 145 Muller-5  
 146 X.Y, y B/y<sup>2</sup> su-w<sup>a</sup> w<sup>e</sup> bb

#### Chromosome 2

200 al b pr cn vg a sp<sup>2</sup>/Cy L<sup>4</sup> sp<sup>2</sup>  
 201 a px sp  
 203 al b c sp/Cy al<sup>2</sup> lt<sup>3</sup> L<sup>4</sup> sp<sup>2</sup>  
 206 b cn c bw  
 208 b pr c  
 212 bw  
 216 c  
 217 cg-c/U  
 218 cl  
 219 cn bw  
 220 esc/B1  
 221 el  
 222 1(2)gl cn bw/Cy cn bw  
 226 L<sup>4</sup>  
 226A L<sup>4</sup> (with  $\pm$  modifiers for eye size)  
 228 pr en  
 230 tr/1(In)  
 232 vg  
 233 vg<sup>ni</sup>  
 234 vg<sup>no</sup>  
 235 vg<sup>nw</sup>/sm Cy

#### Chromosome 3

326G Bd<sup>G</sup>  
 300 cv-c sbd<sup>2</sup>  
 301 cu  
 305 es ca<sup>nd</sup>/Sb In(3R)C e 1(3)e  
 308 Gl Sb/LVM

310 h (iso)  
 312 Ly/D<sup>3</sup>  
 313 Pc/T(2;3)Mé  
 327G ru Bd ca/In(3R)C 1(3)e  
 316 ru h st p<sup>p</sup> ss e<sup>s</sup>  
 328G ru h cu cd ca  
 320 se h  
 321 se ss  
 323 ss  
 324 ss<sup>a</sup>  
 325 ss<sup>a</sup>-B  
 326 ss<sup>a</sup>-40a  
 327 ss<sup>a</sup>-SnB  
 340 In(3LR)T; Mé/In(3LR)Ubx, e<sup>s</sup>

#### Chromosome 4

400 ar/ey<sup>D</sup>  
 401 bt  
 402 bt ey<sup>R</sup> sv<sup>n</sup>  
 403 bt<sup>D</sup>/ci<sup>D</sup>  
 405 ci<sup>W</sup> (iso)  
 407 ci ey  
 408 ci ey<sup>R</sup>  
 408A ci ey<sup>R</sup>; y  
 410 ci sv<sup>na</sup>  
 411 ci<sup>D</sup>/Cat  
 412 ey<sup>2</sup>  
 413 ey<sup>D</sup>/Scn  
 414 ey<sup>D</sup>/sv<sup>dl</sup>  
 415 spa

#### Multichromosomal

501 C1B; Cy/Pm ds<sup>33k</sup>; H/In(3R)Mo  
 Sb sr  
 505 bw; e<sup>4</sup> ro; sv<sup>n</sup>  
 506G y; bw; e<sup>4</sup> ro; ey<sup>2</sup>  
 512 y ac sn<sup>3</sup>; en  
 516 w; vg  
 517 bw; e  
 519 vg; se  
 521 se h; ci ey<sup>R</sup>  
 522 Mal-pr

#### Deficiencies

107 Df(1)N<sup>8</sup>/In(1)dl-49, m<sup>2</sup> g<sup>4</sup>  
 600G Df(1)y-svr/Dp(1;f)101

#### Translocations

603 T(1;2) Bld/C1B  
 607 T(2;3)Xa/Sb bx<sup>D</sup>

#### Suppressors

650 dx<sup>st</sup>, Su-dx  
 652 Su-dx dx  
 656 su-t (t)



CAMBRIDGE, MASSACHUSETTS: HARVARD UNIVERSITY

Note: In addition to the wild-type stocks listed below, 27 common mutant stocks are maintained.

Wild Stocks

Mass. 1952 (in a population cage, derived from 50 wild-population females in 52j)  
 Mass. 1953 (in a population cage, derived from 100 wild-population females in 53i)  
 Oregon-RP (in a population cage after 95 generations of inbreeding)  
 Oregon-RI (inbred each generation; 120 generations in 53j16)

CHAPPEL HILL, NORTH CAROLINA: UNIVERSITY OF NORTH CAROLINA

Note: Only special stocks, not usually obtainable elsewhere, are listed.

11 f <sup>5</sup> su-f	46 M(3)y Sb/LVM
23 cn bw sp (isogenic)	47 M(3)y Gl/Sb bx <sup>D</sup>
24 Cy lt cn <sup>2</sup> L <sup>4</sup> /S Pfd	48 M(3)y Sb/Gl bx <sup>D</sup>
30 lt cn	50 Mé cu sr e <sup>S</sup> ca/"rucuca"
37 S <sup>W</sup> Cy pr/Pfd L <sup>2</sup>	56 ru h th st sr e <sup>S</sup> ca
44 M(3)y bx <sup>D</sup> /LVM	59 ClB; cn bw sp; sv <sup>n</sup>
45 M(3)y Gl/LVM	62 cn bw sp; gvl ey <sup>R</sup>

COLD SPRING HARBOR: CARNEGIE INSTITUTION OF WASHINGTONWild Stocks

1 Amherst-34	6 Formosa, Japan	12 Swedish-b-6 (Swedish-b cleaned of inversions)
2 California-c (In(3R) P, ca/l(3)c)	7 Kyoto, Japan	13 Tuscaloosa, Ala.
3 Canton-Special	8 Lausanne-Special	14 Urbana-Special
4 Crimea	9 Oregon-S	15 Woodbury, N.J.
5 Florida-19 (inbred)	10 Salta, Argentina	
	11 Seto, Japan	

Chromosome 1

17 amx/ClB	34 dm/Cl, y Hw	50 gg <sup>2</sup> /dl-49, y Hw w lz <sup>S</sup>
18 Ax	35 dow/dl-49, y Hw	51 gt w <sup>a</sup>
19 B	m <sup>2</sup> g <sup>4</sup>	51a gt w <sup>a</sup> /gt bb <sup>l1</sup>
20 BB	36 ec ct <sup>6</sup> v g <sup>3</sup> /ClB	52 gt bb <sup>l1</sup> /ClB
21 bb y <sup>bb</sup>	37 ec ct <sup>6</sup> s car/ClB	53 kz/ClB
22 Bg B/In(1)AM	38 ec dx	53a kz
23 bi ct <sup>6</sup> g <sup>2</sup>	39 Ext/dl-49, y Hw	54 l(1)7 dl-49, y Hw <sup>3</sup> m <sup>2</sup> g <sup>4</sup>
24 bo	m <sup>2</sup> g <sup>4</sup>	55 <u>l<sup>J1</sup> sc<sup>J1</sup>/l<sup>J1</sup> sc<sup>J1</sup></u>
25 br	40 f	dl-24 (Muller)
26 Bx <sup>3</sup>	41 f B/y	56 lh B car bb/y
27 car	42 f B <sup>1</sup> Bi/y f	57 m
28 car bb	43 fa	58 M(1)o f/In(1)AM
29 cm	44 flp	59 na/sc <sup>8</sup> dl-49 y B w <sup>a</sup> lz <sup>S</sup>
30 co	45 fo	60 ny/ClB
31 ct <sup>y</sup> dy g f/In(1)	46 fu <sup>8</sup> /y v f car	61 oc ptg <sup>3</sup> /ClB
A <sup>99b</sup> sn <sup>3lf</sup>	47 g <sup>2</sup> pl/ClE	62 od car
32 ct <sup>n</sup> g <sup>2</sup>	48 g <sup>2</sup> ty/y	63 ov
33 dd <sup>2</sup>	49 g <sup>2</sup> ty/B <sup>bb</sup>	64 peb v

65 pn <sup>2</sup>	83 sw	102 w <sup>bl</sup>
68 ras <sup>2</sup>	84 sy	103 w <sup>ch</sup> wy
69 rb cx	85 sx vb <sup>2</sup> sy/In(1)AM	104 w <sup>co</sup>
70 rg	86 t <sup>2</sup> v f	105 w <sup>e</sup>
71 rst <sup>2</sup> /dl-49, y Hw m <sup>2</sup> g <sup>4</sup>	87 tbd	106 w <sup>e</sup> sn/C1B
72 rux/dl-49, y Hw m <sup>2</sup> g <sup>4</sup>	88 tw/C1, y Hw	107 w <sup>e2</sup>
73 rux <sup>2</sup>	89 un <sup>4</sup>	108 w <sup>l</sup> vb
74 sbr/y	90 v	109 w <sup>sat</sup>
75 sc cv v dwx/dl-49 y Hw m <sup>2</sup> g <sup>4</sup>	92 vs	110 w <sup>t</sup> fw
76 sc cv v f	93 w	111 w; We/CPL CPR
77 sc ec cv ct <sup>6</sup> v g f/C1B	94 w fa	112 y
78 sc <sup>2</sup> pn/+	95 w m f	113 y ac w
78a sc t <sup>2</sup> v f tu car ♂ & y f ♀ ("scart")	95a w m f/C1B	114 y ec v wy <sup>2</sup>
79 sc <sup>10</sup> wa	96 w ct <sup>6</sup>	115 y f
80 sep t	97 w ec	117 y pn
81 sd mc	98 w spl	118 y sc
82 svr w <sup>a</sup>	99 w <sup>a</sup>	119 y sc w
	100 w <sup>bf</sup> f <sup>5</sup>	120 w
	101 w <sup>bf</sup> lz/C1B	121 y <sup>2</sup> dvr <sup>2</sup> v f car/C1B
		122 y <sup>2</sup> wy <sup>2</sup> g <sup>2</sup>

Chromosome 2

123 ab <sup>2</sup> /T(Y;2)E	152 ds ft dp <sup>V2</sup> 1(2)M b pr/ Cy, dp <sup>2</sup>	184 Pfd+Ins(2L+2R)Cy, S <sup>2</sup>
124 abr/Cy, hk <sup>2</sup>	153 ds S G b pr/Cy, L	185 pi/Cy pr
125 al b c sp <sup>2</sup>	154 ed Su <sup>2</sup> -dx	186 Pin
126 al b pr cn vg a sp <sup>2</sup> / Cy, L <sup>4</sup> sp <sup>2</sup> (albasp)	155 el	187 pr en
127 al sp b/Ins(2L+2R) Cy, S <sup>2</sup> E-S	156 ex	188 pu
128 al dp b pr c px sp/ Cy pr (all)	157 fes lt/Cy, al <sup>2</sup> lt <sup>3</sup> L <sup>4</sup> sp <sup>2</sup>	189 pys
129 al S ho/Cy	158 fj px sp	190 rdo <sup>2</sup>
130 ap <sup>4</sup> /Cy	159 fr sp/Cy, pr	191 rh
130a ap <sup>4</sup> /Rvd	160 fr <sup>2</sup> wt/Cy	192 rl
131 b arch 1(2)C/Cy, L <sup>4</sup> sp <sup>2</sup>	161 Gr <sup>v</sup> /Cy, dp <sup>2</sup>	194 S Sp ab <sup>2</sup> ltd/NS, px sp
132 b el	162 hk	195 sca
133 b gp a/Cy-RNS	163 ho	196 shr bw <sup>2b</sup> abb sp/ Cy, sp <sup>2</sup>
134 b j	164 hy a px sp/T(2;3) SM, Cy	197 Sk b/In(2L)NS
135 b rd <sup>s</sup> pr cn	165 J/In(2L)+, 1(2)B	198 sm px pd/Cy, al <sup>2</sup> L <sup>4</sup> sp <sup>2</sup>
136 bat/Ins(2L+2R)Cy, S <sup>2</sup>	166 J <sup>34e</sup>	199 stw <sup>3</sup>
137 Bl/esc	168 kn	200 Su-H whd 1(2)Su-H/ Cy, al <sup>2</sup> lt <sup>3</sup> L <sup>4</sup> sp <sup>2</sup>
138 blo	169 L <sup>2</sup>	202 tkd/Cy, al <sup>2</sup> L <sup>4</sup> sp <sup>2</sup>
139 blt	170 L <sup>5</sup>	203 tkv
140 bw	171 lgl cn bw/Cy cn bw	204 trm-Cy
141 c wt px	172 1(2)H L <sup>2</sup> /Cy, dp <sup>2</sup> ; (w)	205 vg
142 cg c/U	173 ll <sup>2</sup>	
143 ch	174 lm/Cy, S <sup>2</sup> dp <sup>2</sup> E-S	
144 cl	175 lt std/Cy, sp <sup>2</sup>	
145 cn	176 ltd	
146 d b/Cy, pr	177 M(2)173/Cy al <sup>2</sup> lt <sup>3</sup> L <sup>4</sup> sp <sup>2</sup>	
147 dp	178 M(2)l <sup>2</sup> /Cy, L <sup>4</sup> sp <sup>2</sup>	
148 dp <sup>T</sup> In(2L+2R)Cy S <sup>2</sup> E-S	179 M(2)z/In(2L)t, 1(2)R	
149 dp b cn c a mr/Cy	180 mi sp/Pm <sup>2</sup>	
150 dp b pr c px sp	181 mr bs <sup>2</sup> /Cy, sp <sup>2</sup>	
150a b (pr) c px sp <sup>2</sup>	182 net ed Su <sup>2</sup> -dx	
151 dp pr px/Cy, pr	183 nw <sup>2</sup> /Cy	



Chromosome 3

206 aa h	232 jv se	256 se
206a ant: ro	233 Ly/D <sup>3</sup>	257 se e <sup>11</sup>
207 app	234 Ly Sb/LVM	258 se rt <sup>2</sup> th/Mé
208 bul	235 M(3)/In(3R)C, e <u>1</u> (3)e	259 se ss k e <sup>s</sup> ro
209 bx <sup>34e</sup> /Payne, Dfd ca	237 M(3)w/In(3R)C, e <u>1</u> (3)e	260 se ss
210 c3G	238 ma fl	260a se ss ro
211 cd	239 mah	261 Ser/In(3R)c, e <u>1</u> (3)a
212 cmp ca/In(3R)c, e	240 obt	262 snb
213 cp	241 pb/Cx, D	263 sr sed
214 cp pP	242 pP by SbSpi/In(3R)C,	264 ss bx
215 cu kar	<u>1</u> (3)a	265 ss bxd k e <sup>s</sup> /X <sup>a</sup>
216 cur	243 Pr/In(3R)C, e	266 ss <sup>a</sup>
217 cv-c	244 Pt/Xa, ca	267 st
218 In(3R)Cyd	245 pyd	268 st E-Mg e <sup>s</sup> M g/ T(2;3)Mé
219 D <sup>3</sup> H/Payne	246 Pc/Mé	269 st sr e <sup>s</sup> ro ca;
220 Dfd/Cx, D	246a R/Mé	tu <sup>36a</sup>
221 D1 <sup>3</sup> /In(3R)C, e	247 ra	270 su ve ru ve h th
222 dv/Mé	248 ri pP	271 th cu sr e <sup>s</sup> ro ca
223 e <sup>4</sup> wo ro	249 rp/Payne, Dfd ca	(theca)
224 e <sup>11</sup>	250 rs <sup>2</sup>	273 th st pb pP/Cx, D
225 e <sup>s</sup> cd ro cmp ca/ Xa, ca	251 ru h th st cu sr e <sup>s</sup> ca(ru-cu-ca)	274 th st W pP
226 eg <sup>2</sup> /Dfd	252 ru h th st cu sr e <sup>s</sup> Pr ca/T(2;3)Mé	275 tt wo
227 gl <sup>3</sup>	253 ru h th st pP cu sr e <sup>s</sup> (res)	276 tx
228 Gl/Payne	254 ru <sup>g</sup> jv se by Mé	277 ve
229 Gl Sb/LVM	255 ry	278 W
230 in pP		
231 jv Hn <sup>r</sup> h		

Chromosome 4

279 ar/ey <sup>D</sup>	283 ci <sup>D</sup> /ey <sup>D</sup>	287 Scn/ey <sup>D</sup>
280 bt	284 ey <sup>2</sup>	288 spa
281 bt <sup>D</sup> /ci <sup>D</sup>	285 gvl ey <sup>R</sup>	289 sv <sup>n</sup>
282 ci ey <sup>R</sup>	286 Mal; pr	290 Cat/ci <sup>D</sup>

Multichromosomal

291 Cy/Pm, ds <sup>33k</sup> , H/C, Sb	293 su-b; b pr c
291a Cy al <sup>2</sup> lt <sup>3</sup> L <sup>4</sup> sp <sup>2</sup> /Pm;	294 v; st
Cx, D/In(3R)Mo, Sb	295 y; bw; e; ci ey <sup>R</sup>
292 sn <sup>3</sup> ; M(3)w/Payne	297 y; bw; e; ci ey <sup>R</sup>

Closed-X298 X<sup>c</sup>, y/f BDeficiencies

299 Df(1)N <sup>8</sup> /dl-49 y Hw m <sup>2</sup> g <sup>4</sup>	303 Df(2)Px <sup>2</sup> /Cy, L <sup>4</sup> sp <sup>2</sup>
300 Df(2)bw <sup>5</sup> sp/Cy, dp	305 Df(2)vg <sup>S</sup> /Cy, al <sup>2</sup> lt <sup>3</sup> L <sup>4</sup> sp <sup>2</sup>

Duplication307 Dp(1;f)135<sup>y2</sup>; In(1)sc<sup>8</sup>, Df(0-sc)w<sup>a</sup> sc<sup>8</sup>

Inversions

- 308 In(1)AB/y v f  
 309 In(1)A<sup>99b</sup>  
 310 In(1)dl-49, v<sup>of</sup>  
 311 In(1)dl-49, y fa<sup>n</sup>  
 312 In(1)rst<sup>3</sup>, rst<sup>3</sup> car bb  
 313 In(1) sc<sup>4</sup>, y sc<sup>4</sup>  
 314 In(1)sc<sup>8</sup>, wa  
 315 In(1)w<sup>m4</sup>  
 315a sc<sup>Sl</sup> B InS wa sc<sup>8</sup> (Muller-5)  
 316 In(2LR)Gla/Cy pr  
 317 In(3L)pers

Translocations

- 318 XY', g<sup>2</sup> By"/y/Y" (Stern)  
 319 T(1;2)7/C1B  
 321 T(1;2)Bld<sup>7</sup>/C1B  
 321a T(1;3)w<sup>Vco</sup>/y w bb?/Cx; D  
 322 T(1;4)w<sup>m5</sup> (het ♂; hom ♀)  
 323 T(Y;2)J ltd/ab<sup>2</sup>  
 324 T(2;3)P/Cy  
 325 T(2;3)S<sup>M</sup> Cy/vg<sup>nw</sup>  
 326 T(2;4)d/Cy, pr

Unanalyzed

- 328 Virus? Co<sub>2</sub>-sensitive e (L'Héritier)

Special Stocks

- 329 Df(1)260-1(0-sc) Df260-1 s/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 330 Df(1)260-2(0-ac) Df260-2/Dpl18  
 332 Df(1)260-10 (Df bands 1-2), y (hom)  
 333 sc260-14 (In) (hom)  
 334 sc260-15 (Tl;3)  
 335 sc260-17 (Tl;2L) (hom)  
 336 Df(1)260-19 (Df bands 1-2), g (hom)  
 337 sc260-20a (Tl;4) (hom)  
 338 260-20f Dp(y<sup>+</sup>)y sc  
 339 sc260-22 (In) (hom)  
 341 260-25b Dp y sc  
 343 260-27 Dp(1)y sc/y sc Dp  
 347 260-31 y ac 260-31 (Tl;2L) y ac/y dl-49  
 348 w258-11 (Df w) y w258-11/dl-49, y Hw m<sup>2</sup>  
 349 w258-14 (Df w) y w258-14/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 351 w258-21 (mottled w, fa dm; Tl;4) y w258-21/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 358 w258-42 (Df w) y w258-42/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 359 w258-43 (Tl;4) y w258-43/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 361 w258-45 (Df w) y w258-45/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 362 w258-46 (Df) y w258-46/w  
 363 w258-48 (Df w) w258-48/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 364 w258-52 (In) w rst/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 368 N25/dl-49, lz<sup>s</sup>  
 370 y N38/dl-49  
 371 N264-2a y N264-2/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 373 N264-7a (In) N264-7 sn<sup>3</sup>/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 375 N264-8 N264-8/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 379 N264-23 (mottled rst, fa; Tl;3L) y N264-23/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 380 N264-29 (mottled rst, fa dm; Tl;3L) y N264-29/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 383 N264-32a y N264-32/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 386 N264-34a (Tl;3L) y N264-34/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 388 N264-39 w<sup>ch</sup> N264-39/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 389 N264-40 N264-40/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 390 N264-41 w N264-41/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 391 N264-47 y N264-47/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 392 N264-48 (In) y N264-48/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 394 N264-50 (Tp 1 into 2L) y N264-50/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>



396 N264-53 (T1;2L) y N264-53/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 397 N264-54 y N264-54/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 399 N264-57 (In) y N264-57/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 400 N264-58b y N264-58/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 401 264-58a-10 w spl, Dp  
 403 N264-63 (Tp) y N264-63/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 404 N264-64 (mottled w; T1;3L) y N264-64/w  
 406 N264-66 (mottled w; Tpl;2R) y N264-66/w  
 407 N264-70 (mottled w rst, fa dm; complex T1;3L;3R) y N264-70/dl-49,  
 y Hw m<sup>2</sup> g<sup>4</sup>  
 410 N264-72 (Df) y N264-72/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 415 N264-83 (Complex T, In 1-3L) y N264-83/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 416 N264-84 (mottled fa, dm; In) y N264-84/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 418 N264-87a (Complex T1;3R;2R) N264-87/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 420 N264-88 (Df) N264-88/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 426 N264-100 (T1;3L mottled w, spl, dm, ct) w sp N/y Hw w  
 428 N264-102 (T1;2R) y N/dl-49, Hw m<sup>2</sup> g<sup>4</sup>  
 429 N264-103 y N/dl-49, Hw m<sup>2</sup> g<sup>4</sup>  
 431 N264-105 (Df N, dm) N/dl-49, Hw m<sup>2</sup> g<sup>4</sup>  
 432 N264-107 y sc w N/dl-49, Hw m<sup>2</sup> g<sup>4</sup>  
 435 N264-108 (In with Df rst, spl, dm) N/dl-49, Hw m<sup>2</sup> g<sup>4</sup>  
 434 N264-109 N/dl-49, Hw m<sup>2</sup> g<sup>4</sup>  
 435 N264-110 (Df w, rst, spl, dm) N/dl-49, Hw m<sup>2</sup> g<sup>4</sup>  
 436 N264-111 (Df N) y N/dl-49, Hw m<sup>2</sup> g<sup>4</sup>  
 437 N264-112 (In) y N/dl-49, Hw m<sup>2</sup> g<sup>4</sup>  
 440 N264-116 (In) N/dl-49, Hw m<sup>2</sup> g<sup>4</sup>  
 441 N264-117 (Df w, rst, spl, dm) N/dl-49, Hw m<sup>2</sup> g<sup>4</sup>  
 442 N264-118 (Df spl) N/dl-49, Hw m<sup>2</sup> g<sup>4</sup>  
 443 N264-119 N/dl-49, Hw m<sup>2</sup> g<sup>4</sup>  
 444 N264-120 (Df spl, dm) y N/dl-49, Hw m<sup>2</sup> g<sup>4</sup>  
 446 N264-123 N/dl-49, Hw m<sup>2</sup> g<sup>4</sup>  
 447 N264-126 (Df, fa, dm) N/dl-49, Hw m<sup>2</sup> g<sup>4</sup>  
 449 N264-129 N/dl-49, Hw m<sup>2</sup> g<sup>4</sup>  
 450 N264-130 (Df fa) N/dl-49, Hw m<sup>2</sup> g<sup>4</sup>  
 452 N264-133 (Complex T1;2L;3R) N/dl-49, Hw m<sup>2</sup> g<sup>4</sup>  
 453 N264-135 (N/dl-49), y Hw m<sup>2</sup> g<sup>4</sup> (Neel)  
 454 N264-136 y N264-136/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 455 ct268-1a y ct268-1/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 456 ct268-2a y ct268-a/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 457 ct268-2b ct268-2/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 458 ct268-3a y ct268-3/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 459 ct268-5a (T1;3R) ct268-5 B/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 460 ct268-5b y ct<sup>-</sup> B/dl-49, Hw m<sup>2</sup> g<sup>4</sup>  
 461 ct268-6a ct268-6 sn<sup>3</sup>/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 462 ct268-17b (T1;2R) y Hw ct268-17/sn<sup>3</sup>  
 463 ct268-20 (In) y ct268-20/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 464 ct268-21 (T1;3R) y ct268-21 B/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 465 ct268-23 y ct268-23 B/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 466 ct268-24 (T1;2R) y ct268-24/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 467 st268-26 (T1;2L) y ct268-26/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 468 ct268-27 (In) y ct268-27/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 469 ct268-29 (T1;3R) y ct268-29/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 470 ct268-29b y ct<sup>-</sup> v f/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 471 ct268-30 y ct268-30/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 473 ct268-32 (T1;2R & Tp) y ct268-32/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 474 ct268-33 (T1;2R) y ct268-33/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 475 ct268-35 (?) y ct268-33/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 476 ct268-36 (T1;3L) y ct268-36/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>

- 477 ct268-37 (T1;3L) ct-/dl-49, Hw m<sup>2</sup> g<sup>4</sup>  
 479 ct268-40 (complex T1;2L;3L;3R) y ct-/dl-49, Hw m<sup>2</sup> g<sup>4</sup>  
 481 ct268-42 (Df) y ct-/dl-49, Hw m<sup>2</sup> g<sup>4</sup>  
 483 Df267-6 y v 267-6/dl-49, y Hw  
 484 Df259-4a (m) Df259-4/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 485 Df259-4c (m) y Df259-4/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 486 Df286-9 (dy) y Df286-9 B/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 487 Df274-2a (Df wy T1;2) sn Df274-2/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 488 g271-2b (g-ty) y g271-2/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 489 g271-3b (g-ty) (From Mrs. Morgan) y g271-3/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 490 g271-6a (g ty) y g271-6/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 491 g271-9 (g) y g271-9/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 492 g271-10 (g) y g271-10/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 493 f257-4 ++/y f  
 495 f257-6a (From Pasadena) f257-6/f B  
 497 f257-19 f257-19 B/In AM  
 499 f257-24 f257-24 B/In AM  
 504 Df B263-24a (In?) y Df B263-24/y f B  
 506 Df B263-34e y B263-34/y f B  
 508 Df B263-43 y B263-43 (hom)  
 511 272-13 (complex Tp) y/dl-49, Hw m<sup>2</sup> g<sup>4</sup>  
 512 278-2a y Bx-/y f B  
 513 278-6 y B Bx-/y  
 514 t282-1b y t-/dl-49, Hw m<sup>2</sup> g<sup>4</sup>  
 515 v267-4 (T1;2L) y v B/dl-49, Hw m<sup>2</sup> g<sup>4</sup>  
 516 285-2 (In) ec/dl-49, Hw m<sup>2</sup> g<sup>4</sup>  
 517 285-3 ec/dl-49, Hw m<sup>2</sup> g<sup>4</sup>  
 519 287-6a y/f B<sup>1</sup>  
 520 pn323-1 (hom)  
 521 pn323-2 (hom)  
 523 pn323-7 (Dp) Dp +/y pn  
 524 pn323-8 (In) pn/dl-49, Hw m<sup>2</sup> g<sup>4</sup>  
 525 337-2 rb sp/rb cx  
 526 251-33 N/dl-49, Hw m<sup>2</sup> g<sup>4</sup>

EVANSTON, ILLINOIS: NORTHWESTERN UNIVERSITY

Note: Stock list unchanged. See DIS-26, pp. 39-40.

LEXINGTON, KENTUCKY: UNIVERSITY OF KENTUCKY

Wild Stocks

- Big Ridge, Tennessee, 1948 (single female strain)  
 Bikini Atoll, 1947  
 Great Smoky Mountains National Park, Tennessee, 1950 (single female strain taken at 3000 feet)  
 Great Smoky Mountains National Park, Tennessee, 1953 (single female strain taken at 1800 feet)  
 Samarkand (isogenic stock inbred for 216 generations by brother-sister matings)



LOS ANGELES, CALIFORNIA: UNIVERSITY OF CALIFORNIA

Note: 70 common stocks are carried in addition to the special stocks listed below.

Chromosome 2

25 bw<sup>47j</sup>/Cy bw sp<sup>2</sup>  
 36 bw<sup>D</sup>  
 37 bw<sup>DE</sup>  
 38 bw<sup>DN</sup>/Cy L<sup>2</sup> sp<sup>2</sup>  
 41 c bw<sup>D</sup>  
 42 c bw<sup>D6</sup>/In(2LR)40d  
 43 c bw<sup>D9</sup>/In(2LR)40d  
 44 c bw<sup>D9</sup>/In(2LR)40d  
 48 dp bw<sup>a</sup>  
 60 tu<sup>1502</sup>/Cy  
 63 IICZ  
 64 IIDC/Cy sp<sup>2</sup>

Multichromosomal

81 bw; st<sup>sp</sup>  
 82 bw<sup>2b</sup>; st<sup>sp</sup>  
 83 bw<sup>a</sup>; st<sup>sp</sup>  
 85 w; Pm/Cy

Deficiencies

87 Df(2)bw<sup>5</sup> sp/Xa

Inversions

88 In(1)hi 1/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 89 In(1)hi 4/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 90 y<sup>3ld</sup> In(1)sc<sup>8</sup>, In(1)dl-49  
 91 In(1)sc<sup>260-22</sup>, In(1)dl-49, v,  
     In(1)BM1  
 93 In(2)bw<sup>VI</sup>/Cy bw sp<sup>2</sup>  
 94 In(2LR)IIA/Cy sp<sup>2</sup>  
 95 In(2LR)IIBI/Cy sp<sup>2</sup>  
 96 In(2LR)IICQ/Cy sp<sup>2</sup>  
 97 In(2LR)IICR/Cy sp<sup>2</sup>  
 98 In(2LR)IICX/Cy sp<sup>2</sup>  
 99 In(2LR)IIDD/Cy sp<sup>2</sup>  
 100 In(2LR)IIDE/Cy sp<sup>2</sup>  
 101 In(2LR)IIDH/Cy sp<sup>2</sup>  
 102 In(2LR)IIP/Cy sp<sup>2</sup>  
 103 In(2LR)IIV/Cy sp<sup>2</sup>  
 104 In(2LR)40d/Cy sp<sup>2</sup>  
 106 In(2LR)40d/Cy sp<sup>2</sup> (D2)  
 107 In(2LR)40d/Cy sp<sup>2</sup> (D3)  
 108 In(2LR)40d/Cy sp<sup>2</sup> (R2)  
 109 In(2LR)40d/Cy sp<sup>2</sup> (R4)

Translocations

110 T(Y;2)bw<sup>D4</sup>, c/In(2LR)40d  
 111 T(2;3)bw<sup>D11</sup>, c/In(2LR)40d  
 112 T(2;3)IIAH/Cy sp<sup>2</sup>  
 113 T(2;3)IICK/Cy sp<sup>2</sup>  
 114 T(2;3)IICS/Cy sp<sup>2</sup>  
 115 T(2;3)IIDA/Cy sp<sup>2</sup>  
 116 T(2;3)IIDJ/Cy sp<sup>2</sup>  
 117 T(2;3)IIG/Cy sp<sup>2</sup>  
 118 T(2;3)Hin 102/Cy sp<sup>2</sup>; Dcx<sup>F</sup>  
 119 T(2;3)Hin 103/wg; Hn<sup>rI</sup>  
 120 T(2;3)Hin 105/Cy sp<sup>2</sup>; Dcx<sup>F</sup>  
 121 T(2;3)Hin 111/Cy sp<sup>2</sup>; Dcx<sup>F</sup>  
 122 T(2;3)Hin 114/Cy sp<sup>2</sup>; Dcx<sup>F</sup>  
 123 T(2;3)Hin 120/Cy sp<sup>2</sup>; Dcx<sup>F</sup>

Transposition

124 Tp(1)hi 11/lz

Lethals

125-126 1(2)Fla. '42 #3, 4/Cy cn<sup>2</sup> bw sp<sup>2</sup>  
 127 1<sup>1076</sup>/M<sup>47i-78</sup> Ro1<sup>47k-30</sup>  
 128 1<sup>1323</sup>/B1  
 129 1(2)M<sup>#7</sup>/B1  
 130 1(2)PW<sup>#8</sup>/Cy L<sup>4</sup>  
 132-139 1(2)Mass. #10-17/Cy cn<sup>2</sup> bw sp<sup>2</sup>  
 140-162 1(2)PW<sup>#18</sup>, 20-23, 25-33, 35-43/  
     Cy cn<sup>2</sup> bw sp<sup>2</sup>  
 163-187 1(2)WO<sup>#44-68</sup>/Cy cn<sup>2</sup> bw sp<sup>2</sup>  
 188-253 1(2)SA<sup>#71-107</sup>, 109-129, 131-138/  
     Cy cn<sup>2</sup> bw sp<sup>2</sup>  
 254-284 1(2)NA<sup>#139-169</sup>/Cy cn<sup>2</sup> bw sp<sup>2</sup>  
 285-346 1(2)BV<sup>#171-189</sup>, 191-197, 199-215,  
     217-229, 231-234, 236, 237/Cy  
     cn<sup>2</sup> bw sp<sup>2</sup>  
 347 1(2)BV<sup>#238</sup>/B1  
 348 1(2)SA<sup>#239</sup>/Cy cn<sup>2</sup> bw sp<sup>2</sup>

NEW HAVEN, CONNECTICUT: YALE UNIVERSITYWild Stocks

- 1 Canton-S
- 2 Canton-S-C (highly inbred)
- 3 Cockaponsett Forest, Conn.
- 4 IF-37, Idaho Falls, Idaho
- 5 New Britain, Conn.
- 6 New Haven, Conn.
- 7 Oregon-R
- 8 Swedish-b

- 49 cn
- 50 cn bw
- 51 dp
- 52 dp bw<sup>a</sup>
- 53 dp<sup>vo</sup>
- 54 L<sup>2</sup>/Cy, sp<sup>2</sup>
- 55 lt std/Cy, sp<sup>2</sup>
- 56 ltd
- 57 ltd<sup>37b</sup>
- 58 ltd<sup>37b</sup> v<sub>G</sub>
- 59 pr
- 60 sca
- 61 vg

Chromosome 1 (X)

- 9 B
- 10 B-reverted
- 11 bi
- 12 bi ct<sup>6</sup> g<sup>2</sup>
- 13 Bg<sup>49h</sup>/M-5
- 14 fu/M-5 x fu
- 15 g<sup>50e</sup>
- 16 g<sup>50e</sup>/y f:=
- 17 Hw<sup>49c</sup>/M-5
- 18 lz<sup>50e</sup>
- 19 pn<sup>2</sup>
- 20 sc ec cv ct<sup>6</sup> v g f/C1B
- 21 sc<sup>S1</sup> B InS w<sup>a</sup> sc<sup>8</sup> (M-5)
- 22 sn<sup>3</sup>/y f:=
- 23 sn<sup>3</sup> v B
- 24 v
- 25 w
- 26 w ec
- 27 w m f
- 28 w spl
- 29 w<sup>a</sup>
- 30 w<sup>a</sup> fw<sup>49</sup>/y f:=
- 31 w<sup>a</sup> v B
- 32 w<sup>a</sup> v B/InAM
- 33 w<sup>bf</sup> lz/C1B
- 34 w<sup>bl</sup>
- 35 w<sup>e</sup>
- 36 y Hw m<sup>2</sup> g<sup>4</sup>, dl-49/sc<sup>7</sup> AM, ptg<sup>4</sup>
- 37 y<sup>2</sup> w<sup>a</sup> cv v f (extra Y's)
- 38 y<sup>2</sup> w<sup>a</sup> cv v + f/y f:= (reversion of f)
- 39 y<sup>2</sup> w<sup>a</sup> cv v + f/y f (lethal detached X:=)
- 40 y<sup>2</sup> v f
- 41 y<sup>2</sup> v f B

Chromosome 3

- 62 D1<sup>K</sup>/Sb
- 63 e
- 64 G1 Sb/In(3)LVM
- 65 ru h th st cu sr e<sup>s</sup> ca (w<sup>a</sup>)
- 66 se
- 67 ss
- 68 ss<sup>a</sup>
- 69 st

Chromosome 4

- 70 ci ey<sup>R</sup>
- 71 ey<sup>2</sup>
- 72 sv<sup>n</sup>

Multichromosomal

- 73 ct<sup>461</sup> v; bw; e
- 74 g; cn
- 75 v; bw
- 76 v; bw; e
- 77 v; bw; e; ey<sup>2</sup>
- 78 v; e
- 79 w; e
- 80 w<sup>a</sup>; v; e
- 81 w<sup>e</sup>; cn
- 82 y v f; bw
- 83 bw; e
- 84 bw; st
- 85 cn bw; e
- 86 dp; e
- 87 dp<sup>dr</sup>; e
- 88 pr; ss
- 89 e; ey<sup>2</sup>

Attached-X

- 90 X<sup>C</sup>, y/f B

DeficienciesChromosome 1 (X)

- 91 N8/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>

Chromosome 2

- 42 al
- 43 al b c sp<sup>2</sup>
- 44 b vg
- 45 b vg c sp<sup>2</sup>
- 46 bs<sup>2</sup>
- 47 bw
- 48 bw bs<sup>CY</sup>



92 N45e/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 93 N48j/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 94 N48j/M5  
 95 N264-40/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 96 1(1)49c-B5/M-5  
 97 Df(1)y sc (Vogt)/M-5  
 98 y w258-11/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 99 y w258-21/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 100 y w258-42/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 101 y w258-48/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 102 Df(1)B263-34/y<sup>2</sup> v f B

Chromosome 2

103 Df(2)vg<sup>B</sup>/Cy, L<sup>4</sup> sp<sup>2</sup>  
 104 Df(2)vg<sup>B</sup>/Rvd  
 105 Df(2)vg<sup>C</sup>/Cy, L<sup>4</sup> sp<sup>2</sup>  
 106 Df(2)vg<sup>D</sup> sp<sup>2</sup>/Cy, L<sup>4</sup> sp<sup>2</sup>  
 107 Df(2)vg<sup>S</sup> cn/Cy, al<sup>2</sup> lt<sup>3</sup> L<sup>4</sup> sp<sup>2</sup>

Duplications

108 Dp(1;f)X<sup>c2</sup>/y 1(1)7/y 1(1)7

Altered Y

109 Y<sup>1c</sup>/X.Y<sup>S</sup> (+)

NEW ORLEANS, LOUISIANA: LOUISIANA STATE UNIVERSITY

Note: Only tumor stocks are listed here.

1 <u>1</u> (1)7/dl-49 y Hw m <sup>2</sup> g <sup>4</sup>	15 bw st tu
2 <u>1</u> (1)7e <u>1</u> (1)7/dl-49 y Hw	16 ed Su <sup>2</sup> -dx
3 lz <sup>3</sup> f	17 f <sup>257-19</sup> B/In AM
4 tu <sup>h</sup>	18 w <sup>bf</sup> f <sup>257-5</sup>
5 we sn B l <sup>t</sup> /sc <sup>S1</sup> (InS) w <sup>a</sup> ct sc <sup>8</sup>	19 tu <sup>50d</sup>
6 y <u>1</u> (1)7/dl-49 y Hw m <sup>2</sup> g <sup>4</sup>	20 vg mt <sup>A</sup> bw
7 bw tu	21 y B <sup>263-43</sup> (homozygous)
8 Hx	22 vg bw tu
9 st sr e <sup>S</sup> ro ca; tu <sup>36a</sup>	23 tu(2)49k; ma 49d
10 tu <sup>G</sup>	24 tu <sup>47</sup>
11 tu <sup>48j</sup>	25 tu <sup>50i</sup> (3 stocks, #20, #21, #23)
12 aa tu <sup>36e</sup>	26 tu <sup>50j</sup>
13 se e <sup>11</sup> tu <sup>49h</sup>	27 tu <sup>51m</sup>
14 tu <sup>wps</sup>	28 tu <sup>bs</sup>
	29 Su-er bw; st er

OAK RIDGE, TENNESSEE: OAK RIDGE NATIONAL LABORATORY, BIOLOGY DIVISION

Approximately 50 additional stocks maintained in other laboratories are available.

1 bw; Y:bw<sup>+</sup>; X<sup>C</sup> y/y v f car      2 X<sup>C</sup> y/y v f car

PASADENA, CALIFORNIA: CALIFORNIA INSTITUTE OF TECHNOLOGYWild Stocks

1 Canton-S	4 Swedish-c (Df(2)Sw <sup>L</sup> , Df(2)Sw <sup>R</sup> )
2 Lausanne-S	5 Urbana-S
3 Oregon-R-C (Df(2) Ore)	

Chromosome 1 (X)

6 amx/C1B	13 br we ec rb t <sup>4</sup> /FM1,	19 Bx <sup>r49k</sup> /y f:=
7 Ax	y <sup>3ld</sup> sc <sup>8</sup> w <sup>a</sup> lz <sup>S</sup> B	20 car
8 B	14 Bx	21 cm
9 Bg B/In(1)AM	15 Bx <sup>2</sup>	22 cm ct <sup>6</sup>
10 bi ct <sup>6</sup> g <sup>2</sup>	16 Bx <sup>3</sup>	23 Co
11 bo	17 Bx <sup>J</sup>	24 ct <sup>n</sup> oc/FM1, y <sup>3ld</sup> sc <sup>8</sup> w <sup>a</sup>
12 br	18 Bx <sup>r</sup>	lz <sup>S</sup> B

25 cx	70 od	119 sy
26 cx <sup>tg</sup> t/FM1, y <sup>3ld</sup> sc <sup>8</sup> wa lz <sup>s</sup> B	71 peb v	120 t
27 dm/yf:=	72 pn <sup>2</sup>	121 t <sup>2</sup> v f
28 dow/dl-49, m <sup>2</sup> g <sup>4</sup>	* ptg.....(572)	122 t <sup>3</sup>
* dxst.....(567)	73 ptg <sup>2</sup>	123 tw/FM1, y <sup>3ld</sup> sc <sup>8</sup> wa lz <sup>s</sup> B
29 dy	74 r <sup>9</sup> /y f:=	124 un Bx <sup>2</sup> /In(1)AM, ptg <sup>4</sup>
* ex-s.....(568)	75 r <sup>39k</sup> f B/In(1)AM	125 un <sup>4</sup>
30 ec	76 ras dy	126 v
31 ec ct <sup>6</sup> s car/FM1, y <sup>3ld</sup> sc <sup>8</sup> wa lz <sup>s</sup> B	77 ras <sup>2</sup>	127 v Bx <sup>r</sup> car
32 ec dx	78 ras <sup>3</sup> m	128 v f su <sup>w</sup> -f
33 ec dx/dl-49, Su-Hw y Hw m <sup>2</sup> g <sup>4</sup>	79 rb	129 v M(1)n/In(1)AM
34 Ext/FM1, y <sup>3ld</sup> sc <sup>8</sup> wa lz <sup>s</sup> B	80 rb cx	130 v rl <sup>2</sup>
35 f	81 rg	131 v <sup>2</sup> fw
36 f B	82 rst <sup>2</sup> /FM1, y <sup>3ld</sup> sc <sup>8</sup> wa lz <sup>s</sup> B	132 v <sup>36f</sup>
37 f BB/In(1)AM	83 rux/dl-49, y Hw m <sup>2</sup> g <sup>4</sup>	133 vb
38 f BB <sup>36b</sup> /In(1)AM	84 rux <sup>2</sup>	134 vs
39 f B <sup>3</sup> /In(1)AM	85 s	135 w
40 f B <sup>1B</sup> /yf:=	86 sbr/y	136 w m f
41 f fu/yf:=	87 sc	137 wa
42 f <sup>36a</sup>	88 sc cv v f	138 wa <sup>2</sup>
43 fa	89 sc cv v dwx/dl-49, y Hw m <sup>2</sup> g <sup>4</sup>	139 wa <sup>3</sup>
* fa <sup>n</sup> .....(654)	90 sc ec cv ct <sup>6</sup> v g f/C1B	140 wa <sup>4</sup>
44 flp	91 sc <sup>2</sup> pn/y f:=	141 wbf f <sup>5</sup>
45 fo	92 sc <sup>3B</sup>	142 wbf <sup>2</sup>
46 g <sup>2</sup>	93 sc <sup>3-1</sup> w/yf:=	* wbf <sup>3</sup> .....(584)
47 g <sup>2</sup> pl/C1B	94 sc <sup>5</sup> bb <sup>sc5</sup>	143 wch wy
48 g <sup>2</sup> ty/y f:=	95 sc <sup>6</sup> wa	144 wco sn <sup>2</sup>
49 gg <sup>2</sup> /dl-49, lz <sup>s</sup>	96 sc <sup>10</sup> wa	145 wcol
50 gg <sup>3</sup>	97 sc <sup>10-1</sup> /y Hw	146 we
51 gt bb <sup>11</sup> /C1B	98 scp t	147 we <sup>2</sup>
52 gt wa/y f:=	99 sd	148 wh
53 gt wa	100 Sh <sup>2</sup> /FM1, y <sup>3ld</sup> sc <sup>8</sup> wa lz <sup>s</sup> B	149 wi f <sup>3</sup> bb <sup>M</sup>
54 Hw <sup>49c</sup> /FM1, y <sup>3ld</sup> sc <sup>8</sup> wa lz <sup>s</sup> B	101 shf <sup>2</sup>	150 wsat
55 if <sup>3</sup>	* sn.....(694)	151 wt fw
56 kz	102 sn <sup>3</sup>	152 wy
57 l(1)7/dl-49, y Hw m <sup>2</sup> g <sup>4</sup>	103 sn <sup>4</sup>	153 y
58 l(1)J1 sc <sup>J1</sup> /l(1)J1 sc <sup>J1</sup> /	104 sn <sup>34e</sup>	154 y ac v
Del 24	105 sn <sup>36a</sup> /y f:=	155 y pn
59 lh B car bb/y	106 spl	156 y sc
60 lz/C1B	107 sta/C1B	157 y sc lz <sup>g</sup> v f/y f:=
61 lz <sup>3</sup> /y f:=	108 sta/yf:=	158 y sc <sup>5</sup>
* lz <sup>D</sup> .....(569)	109 Su <sup>x</sup> -dx dx	159 y sc <sup>D1</sup>
62 lz <sup>34k</sup> /y f:=	110 su <sup>2</sup> -s v	160 y sc <sup>D2</sup>
63 lz <sup>37h</sup>	111 su <sup>2</sup> -s wa cv t f.. (f reverted or suppressed)	161 y w spl
64 m	112 su <sup>3</sup> -s eq/y f:=	162 y <sup>2</sup>
65 ma-1/y f:=	113 su-t, t/yf:=	163 y <sup>2</sup> cv v f
66 M(1)o f/In(1)AM	114 su <sup>S2</sup> -v-pr v/yf:=	164 y <sup>2</sup> dvr <sup>2</sup> v
67 M(1)Sp/In(1)AM	115 svr	165 y <sup>2</sup> sc wa ec
68 na/sc <sup>8</sup> , dl-49, y <sup>3ld</sup> wa lz <sup>s</sup> B	116 svr wa	166 y <sup>2</sup> wa
69 ny f/FM1, y <sup>3ld</sup> sc <sup>8</sup> wa lz <sup>s</sup> B (ri)	117 sw	167 y <sup>2</sup> wa(=apr) w
	118 sx vb <sup>2</sup> sy/In(1)AM	168 y <sup>2s</sup>
		169 y <sup>2s</sup> fw <sup>34e</sup>
		170 y <sup>3d</sup> /y f:=
		171 y <sup>34c</sup>
		172 ytd
		173 yv <sup>2</sup>



Chromosome 2

174 a px sp	225 chy	272 hy a px sp/SM2,
175 ab	226 ck/Cy	al <sup>2</sup> Cy lt <sup>v53</sup>
176 abr/Cy, hk <sup>2</sup>	227 cl	sp <sup>2</sup>
177 ad	228 cl <sup>2</sup> px sp/T(T;2)E	273 j
178 al	229 cn	274 J B1/In(2L)NS
179 al b c sp <sup>2</sup>	230 cn bw	275 J <sup>34e</sup>
180 al dp b bw <u>1</u> (2)ax/Cy,	231 cn en/Cy, al <sup>2</sup> lt <sup>3</sup> L <sup>4</sup>	276 kn
sp <sup>2</sup>	sp <sup>2</sup>	277 L
181 al dp b pr blt bw/Cy,	232 cn <sup>3</sup> /T(Y;2)C	278 L <sup>2</sup>
al <sup>2</sup> lt <sup>3</sup> L <sup>4</sup> sp <sup>2</sup>	233 cn <sup>35k</sup>	279 L <sup>4</sup>
182 al dp b pr c px sp	234 cru/Cy; (w <sup>e</sup> )	280 L <sup>5</sup>
183 al S ast ho/Cy, E-S	235 d/Cy(2L), dp <sup>2</sup> b pr	281 L <sup>F</sup>
184 Alu	236 d b/Cy, pr	282 L <sup>si</sup>
185 an/Cy	237 dil <sup>2</sup> hv bw sp/Cy, al <sup>2</sup>	283 <u>1</u> (2)39a px slt
186 an <sup>2</sup> /Cy, bw <sup>v34</sup>	lt <sup>3</sup> L <sup>4</sup> sp <sup>2</sup>	sp/SM2 al <sup>2</sup> Cy
187 ang	238 dke c	lt <sup>v53</sup> sp <sup>2</sup>
188 ap <sup>4</sup> /Rvd	239 dp	284 <u>1</u> (2)a bs <sup>3</sup> , In(2L)
190 arch chl/Cy, al <sup>2</sup> lt <sup>3</sup>	240 dpNov	t/Pm, ds <sup>33k</sup>
L <sup>4</sup> sp <sup>2</sup>	241 dp <sup>o</sup>	285 <u>1</u> (2)ay b c sp/Cy,
191 ast ho	242 dp <sup>o2</sup>	al <sup>2</sup> lt <sup>3</sup> L <sup>4</sup> sp <sup>2</sup>
192 ast <sup>4</sup> dp cl	243 dpRf/Pm, ds <sup>33k</sup>	286 <u>1</u> (2)H L <sup>2</sup> /T(2;3)Xa
193 b	244 dp <sup>tx</sup> b/Cy	287 <u>1</u> (2)mat/Cy
194 b el rd <sup>s</sup> pr cn	* dp <sup>v</sup> .....(578)	288 l <sup>12</sup>
195 b Go/Gla	245 dp <sup>v2</sup>	289 lm/Cy, S <sup>2</sup> dp <sup>2</sup> E-S
196 b gp	246 dp <sup>v1</sup> /Cy, al <sup>2</sup> L <sup>4</sup> sp <sup>2</sup>	290 lt/T(Y;2)A
197 b j	247 ds dp	291 lt std/SM2, al <sup>2</sup>
198 b <u>1</u> (2)Bld pr c px sp/	248 ds ft dp <sup>v2</sup> <u>1</u> (2)M b	Cy lt <sup>v53</sup> sp <sup>2</sup>
Cy, al <sup>2</sup> lt <sup>3</sup> L <sup>4</sup> sp <sup>2</sup>	pr/Cy dp <sup>2</sup>	292 lt stw <sup>3</sup>
199 b lt bw/T(Y;2)G	249 ds S G b pr/Cy, al <sup>2</sup> lt <sup>3</sup>	293 ltd
200 b sf	L <sup>4</sup> sp <sup>2</sup>	294 lw
201 b vg	250 ds <sup>W</sup> /In(2L)Cyt, Su-S	295 M(2)173/Cy, al <sup>2</sup>
202 bat/Ins(2L+2R)Cy, S <sup>2</sup>	dp <sup>2</sup> pr	lt <sup>3</sup> L <sup>4</sup> sp <sup>2</sup>
203 B1/In(2LR)dp	251 ds <sup>38k</sup> /Cy(2L), dp <sup>2</sup> b pr	296 M(2)B/In(2L)t,
204 B1 L <sup>2</sup> /Cy sp <sup>2</sup>	252 dw-24F cl/Cy, dp <sup>2</sup>	<u>1</u> (2)B
205 B1 stw <sup>3</sup> /In(2LR)dp	253 dw-24F <u>1</u> (2)cg cg/Cy,	297 M(2)12/Cy, L <sup>4</sup> sp <sup>2</sup>
206 B1 stw <sup>48</sup> blt tuf/Cy,	al <sup>2</sup> lt <sup>3</sup> L <sup>4</sup> sp <sup>2</sup>	298 M(2)S3/SM2, al <sup>2</sup>
sp	254 ed Su <sup>2</sup> -dx	Cy lt <sup>v53</sup> sp <sup>2</sup>
207 Bla/Cy	255 el	299 M(2)S6/Cy, pr
208 blo	256 esc/B1	300 M(2)S7/Cy, al <sup>2</sup>
209 blt	257 ex	lt <sup>3</sup> L <sup>4</sup> sp <sup>2</sup>
210 bri	258 ex ds S <sup>X</sup> ast <sup>X</sup> /SM1,	301 M(2)S9/Cy, dp <sup>2</sup>
211 bs <sup>2</sup>	al <sup>2</sup> Cy sp <sup>2</sup>	302 M(2)S11/Cy, bw <sup>v34</sup>
212 bw	259 fes Alu lt/Cy, al <sup>2</sup>	303 M(2)S13/Cy, bw <sup>v34</sup>
213 bw ba	lt <sup>3</sup> L <sup>4</sup> sp <sup>2</sup>	304 M(2)z/In(2L)t,
214 bw tu	260 fj <u>1</u> (2)Su-H/Xa	<u>1</u> (2)R
215 bw <sup>2b</sup>	261 fj wt/Xa	305 M(2)z Sk b/Cy(2L)
216 bw <sup>4</sup>	262 fr/Cy, dp <sup>2</sup>	dp <sup>2</sup> b pr
217 bw <sup>D</sup>	263 fr <sup>2</sup> wt/Cy	* Mal.....(581)
218 c	264 ft	306 mi/Pm <sup>2</sup>
219 c wt px	265 Gr <sup>v</sup> /Cy, dp <sup>2</sup>	307 mr bs <sup>2</sup> /Pm, ds <sup>33k</sup>
220 cg c/U	266 hk	308 mr <sup>2</sup> /Bld, In(2R)Cy
221 ch	267 hk pr	309 msf/Cy, sp <sup>2</sup>
222 chl	268 ho	310 net
223 chl en/Cy, al <sup>2</sup> L <sup>4</sup> sp <sup>2</sup>	269 hv/Cy, al <sup>2</sup> lt <sup>3</sup> L <sup>4</sup> sp <sup>2</sup>	311 net ed Su <sup>2</sup> -dx
224 chl <u>1</u> (2)bw bw <sup>2b</sup> mr <sup>2</sup> /	270 Hx	312 nw <sup>2</sup> /Cy-RNS
Cy, al <sup>2</sup> L <sup>4</sup> sp <sup>2</sup>	271 hy/Cy L <sup>4</sup> sp <sup>2</sup>	313 pd

314 pd 11	336 rd/Cy, L <sup>4</sup> sp <sup>2</sup>	357 spd gt-4/Gla
315 pd 11 <sup>2</sup> sp	337 rdo	358 std/Cy, al <sup>2</sup> lt <sup>3</sup> L <sup>4</sup> sp <sup>2</sup>
316 Pfd/Ins(2L+2R)Cy, S <sup>2</sup>	338 rdo <sup>2</sup> pr	359 stw/T(Y;2;3)I
317 pi/Gla	339 Rf/Pm, ds <sup>33k</sup>	360 stw <sup>2</sup>
318 pi 1(2)301/cy, al <sup>2</sup> lt <sup>3</sup> L <sup>4</sup> sp <sup>2</sup>	340 rh	361 stw <sup>3</sup> /T(Y;2)B
319 pk cn	341 rl	362 stw <sup>5</sup>
320 pk tuf (sp <sup>2</sup> /+)	342 rub	363 stw <sup>48</sup> blt tuf
321 po vg	343 S/Cy, E-S	364 Su-H whd 1(2)Su-H/Cy, al <sup>2</sup> lt <sup>3</sup> L <sup>4</sup> sp <sup>2</sup>
322 po <sup>2</sup>	344 S Sp Bl N-2/Cy, L <sup>4</sup> sp <sup>2</sup>	365 Su-H/Cy, pr
323 pr	345 SR/Pm, ds <sup>33k</sup>	* tet.....(571)
324 pr cn/T(Y;2)C	346 sca	366 tkd/Cy, al <sup>2</sup> L <sup>4</sup> sp <sup>2</sup>
325 pr cn ix/Cy, al <sup>2</sup> lt <sup>3</sup> L <sup>4</sup> sp <sup>2</sup>	347 sca 1(2)C/Cy, sp <sup>2</sup>	367 tkv
326 prbw	348 sf <sup>2</sup>	368 tri vg <sup>No2</sup> /Cy
327 pu	349 shr bw <sup>2b</sup> abb sp/Cy, sp <sup>2</sup>	369 tuf ltd
328 puff	350 shv	370 Uf
329 pw-c/Cy	351 sm px/Cy	371 vg
330 px	352 sm px pd/Cy, al <sup>2</sup> L <sup>4</sup> sp <sup>2</sup>	372 vg <sup>ni</sup>
331 px bw sp/T(Y;2)J	353 sp <sup>2</sup> bs <sup>2</sup>	373 vg <sup>np</sup>
332 px bw mr sp/Pm, ds <sup>33k</sup>	354 Sp/In(2L)t, 1(2)R	374 vg <sup>hw</sup> Hia/T(2;3)S <sup>M</sup> Cy
333 pys	355 Sp J/In(2L)Cyt, Su-S dp <sup>2</sup> pr	375 vst/Cy
334 Q	356 Sp J L <sup>2</sup> Pin/Cy, sp <sup>2</sup>	376 whd
335 rbc(ss)		377 wt

Chromosome 3

378 a-3	405 cv-d	432 gl <sup>3</sup>
379 aa h	406 D/Gl	433 Gl Sb/LVM
380 aa tu-36e	407 D <sup>3</sup> Sb ca <sup>2</sup> /Payne	434 h
381 abd	408 det	435 h <sup>2</sup>
382 app	409 Dfd/Cx	436 H/In(3R)hp, hp
383 ashg	410 Dfd <sup>r</sup>	437 H Pr/In(3R)C, e
384 ashg e <sup>s</sup>	411 D1 H e <sup>s</sup> cd/In(3R) spr, spr	438 H <sup>2</sup> /Xa
385 bar-3(Ives)	412 D1 <sup>5</sup> /In(3R)C, e	439 H <sup>3</sup> /In(3R)C, Sb e 1(3)e
386 Bd <sup>G</sup> /In(3R)C, 1(3)a	413 D1 <sup>5</sup> /In(3R)C, 1(3)a	440 Hn <sup>r</sup>
387 bf/In(3R)C, Sb e 1(3)e	414 D1 <sup>7</sup> /In(3R)Mo, Sb sr	441 in
388 bul	415 D1 <sup>9</sup> /In(3R)C, e	442 jv
389 bv	416 D1 <sup>11</sup> /Payne, Dfd ca	443 jv Hn <sup>r</sup> h
390 bx <sup>3</sup> /In(3R)C, 1(3)a (su <sup>2</sup> -lw present)	417 D1 <sup>12</sup> /Payne, Dfd ca	444 jvl
391 bx <sup>34e</sup>	418 D1 <sup>13</sup> /In(3R)C, Sb e 1(3)e	445 kar <sup>2</sup>
392 bx <sup>D</sup> e <sup>4</sup> /Payne, Dfd ca (bx <sup>D</sup> = Ubx)	419 D1 <sup>14</sup> /In(3R)Cyd, Cyd	446 1(3)36d10/Cx, D
393 ca	420 D1 <sup>x</sup> /Payne	447 ld
394 ca bv	421 dwh/Payne, Dfd ca	448 Ly/D <sup>3</sup>
395 ca <sup>2</sup>	422 e <sup>4</sup> wa ro	449 Ly Sb/LVM
396 cd	423 e <sup>11</sup>	450 M(3)/In(3R)C, e 1(3)e
397 cmp ca/In(3R)C, e	424 e <sup>s</sup>	451 M(3)124/In(3R)C, e 1(3)e
398 cp	425 e <sup>s</sup> cd ro cmp ca/Xa, ca	452 M(3)36e/In(3R)C, 1(3)a
399 cp in ri p <sup>D</sup>	426 eg/Cx, D	453 M(3)39b/In(3R)Cyd, Cyd
400 cu	427 eg <sup>2</sup> /Cx, D	454 M(3)40130/Payne, Dfd ca
401 cu kar	428 eyg	455 M(3)B/In(3R)C, e 1(3)e
402 cur	429 fz	456 M(3)B <sup>2</sup> /In(3R)C, Sb e 1(3)e
403 cv-c	430 gl	457 M(3)S32/T(2;3)Me
404 cv-c sbd <sup>2</sup>	431 gl <sup>2</sup> e <sup>4</sup>	458 M(3)S34/T(2;3)Me



459 M(3)S36/T(2;3)Mé	486 rsd	513 ss <sup>a</sup> -B
460 M(3)S37/Mé	487 ru	514 st
461 M(3)w/In(3R)C, 3 <u>1</u> (3)e	488 ru h th st p <sup>p</sup> H e <sup>s</sup> ro/ C(3)C, M(3)X e <sup>x</sup>	515 st c3G ca/TM1, Mé ri (sp <sup>2</sup> )
462 M(3)y/Mé	489 ru h th st cu sr e <sup>s</sup> ca (ru-reverted?)	516 st ri in p <sup>p</sup>
463 ma	490 ru h th st cu sr e <sup>s</sup> Pr ca/T(2;3)Mé	517 st sbd e <sup>s</sup> ro ca
464 ma fl	491 ru h th st p <sup>p</sup> cu sr e <sup>s</sup>	518 st sr e <sup>s</sup> ro ca; tu-36a
465 mah	492 ru <sup>g</sup> jv se by	519 st sr H <sup>2</sup> ca/In(3R) p <sup>w</sup> , st <u>1</u> (3)W ca
466 Mc/Xa	493 ry	520 st <sup>sp</sup>
467 obt	494 Sb/In(3IR)bxd <sup>D101</sup> (bxd <sup>D101</sup> = Ubx <sup>101</sup> )	* su-pd.....(572)
468 p	495 Sb bx <sup>D</sup> /Xa (bx <sup>D</sup> = Ubx)	521 su <sup>2</sup> -Hw bx bxd/TM1, Mé ri(sp <sup>2</sup> )
469 p <sup>p</sup>	496 Sb H/In(3R)C, cd	522 su-t; t
470 p <sup>p</sup> bx st e <sup>s</sup>	497 SbSp <sup>i</sup> /C(3)x	523 su-ve ru ve h th
471 p <sup>p</sup> cu	498 se	524 th
472 pb/C(3)x	499 se app	525 th st cp
473 Pc/TM1, Mé ri	500 se h	526 th st pb p <sup>p</sup> /C(3)x
* Pdr.....(580)	501 se rt <sup>2</sup> th/Mé	527 tra/Cx, D ( <u>y</u> <u>v</u> /w <sup>a</sup> )
474 Pr/In(3R)C, <u>e</u>	502 se ss k e <sup>s</sup> ro	528 tt wo
475 Pt/Xa, ca	503 sed	529 tu-h
476 pyd	504 Ser/In(3R)C, e <u>1</u> (3)e	530 tx
477 R Ly/In(3L)P, gm	505 snb	531 ve
478 ra	506 sr	532 ve h th
479 ri	507 sr gl	533 ve R/In(3L)P, gm
480 ri bod e <sup>s</sup> /Mé, In(3R)C, Sb e <u>1</u> (3)e	508 sr sed	* vo <sup>3</sup> .....(578)
481 ri p <sup>p</sup> /st, T(Y;2;3)F	509 ss	534 W
482 ro	510 ss bx Su <sup>2</sup> -ss	535 W Sb/Cx, D
483 ro Bd ca/In(3R)C, <u>1</u> (3)a	511 ss bxd k e <sup>s</sup> /Xa	536 wk/Payne Dfd ca
484 ro ca ra/T(2;3)Mé	512 ss <sup>a</sup>	537 wo
485 rs <sup>2</sup>		

Chromosome 4

538 ar/ey <sup>D</sup>	547 ci <sup>361</sup>	557 gvl sv <sup>n</sup>
539 bt	549 ci <sup>D</sup> /ey <sup>D</sup>	558 gvl sv <sup>n</sup> ey <sup>R</sup>
540 bt <sup>D</sup> /ci <sup>D</sup>	550 ci <sup>W</sup>	559 ey
541 bt ey <sup>R</sup> sv <sup>n</sup>	551 ci sv <sup>n</sup> ; + ♀; w <sup>a</sup> ♂	560 Scn/ey <sup>D</sup>
542 ce <sup>2</sup> /spacat	552 ey	561 spa
543 ci ey <sup>R</sup>	553 ey <sup>2</sup>	562 spa <sup>Cat</sup> /ci <sup>D</sup>
544 ci gvl bt	554 ey <sup>4</sup>	563 sv <sup>35a</sup>
545 ci gvl ey <sup>R</sup> sv <sup>n</sup>	555 gvl	564 sv <sup>de</sup> /ey <sup>D</sup>
546 ci sv <sup>n</sup> ey <sup>R</sup>	556 gvl ey <sup>R</sup>	565 sv <sup>n</sup>

Multichromosomal Stocks

566 br <sup>3</sup> dx <sup>st</sup> ; ed Su <sup>2</sup> -dx (1;2)	575 bw; st (2;3)
567 dx <sup>st</sup> ; Su-dx (1;2)	576 bw <sup>4</sup> ; st (2;3)
568 e <sup>x</sup> -S; S/Cy (1;2)	577 Cy/Pm ds <sup>33k</sup> ; H/In(3R)Mc, Sb sr (2;3)
569 lz <sup>D</sup> /dl-49, m <sup>2</sup> g <sup>4</sup> ; Cy/Pm (1;2)	578 dp <sup>v</sup> ; vo <sup>3</sup> (2;3)
570 v; bw (1;2)	579 Pm, dp b/Cy, sp <sup>2</sup> ; Sb/D, CxF (ru h ca?)(2;3)
571 sy; tet (1;2)	580 px pd; Pdr H Dp(2;3)P/Pdr (2;3)
572 ptg; px pd; su-pd (1;2;3)	581 Mal pr
573 al dp b Bl c px sp/Cy; D/C(3)X (2;3)	
574 yf:=; bw; e; ci ey <sup>R</sup> (1;2;3;4)	

Attached-X

582 <u>br ec/y<sup>3d</sup></u>	* <u>y v f</u> .....(591,645)
583 <u>f B/suS2-v-pr v</u>	* <u>y w</u> .....(703)
584 <u>wbf M(1)36/wbf3/sn<sup>36a</sup></u>	* <u>yv f car</u> .....(652)
585 <u>y/g<sup>2</sup> ty</u>	* <u>y w bb</u> .....(608)
* <u>y v</u> .....(527)	586 <u>y sc<sup>4</sup> sc<sup>8</sup>/y<sup>2</sup> su-w<sup>a</sup> w<sup>a</sup> bb</u>

Attached-XY

587 v f B X-Y/y<sup>2</sup> su-w<sup>a</sup> w<sup>a</sup> bb

Closed-X

588 X <sup>c</sup> , y/y f:=	590 In(X <sup>c2</sup> )w <sup>vc</sup> /y Hw dl-49 m <sup>2</sup> g <sup>4</sup> f <sup>5</sup>
589 X <sup>c2</sup> , cv v f/C1B	(Catcheside)

Closed-Y

591 Y<sup>lc</sup>/y w Y<sup>S</sup> & y v f (Muller)

DeficienciesDeficiencies-X

592 Df(1)259-4	Df(1)259-4/dl-49 y Hw m <sup>2</sup> g <sup>4</sup>
* Df(1)(O+ac)sc <sup>8</sup>	(633,634, etc.)
593 Df(1)(O+sc)260-1	Df(1)(O+sc)/dl-49, y Hw m <sup>2</sup> g <sup>4</sup>
594 Df(1)B263-20	Df(1)B263-20/sc <sup>7</sup> AM
595 Df(1)bb	In(1)bb-, y sl <sup>2</sup> bb-/In(1)AM (Dobzhansky)
596 Df(1)bb	In(1)bb-, y v car bb-/In(1)AM
* Df(1)bb <sup>1</sup>	(609)
597 Df(1)ct268-30	Df(1)ct268-30, y/dl-49, y Hw m <sup>2</sup> g <sup>4</sup>
598 Df(1)ct268-42	Df(1)ct268-42, y/dl-49, y Hw m <sup>2</sup> g <sup>4</sup>
599 Df(1)g <sup>1</sup>	Df(1)g <sup>1</sup> , f B/In(1)AM (L. V. Morgan)
600 Df(1)N8	Df(1)N8/dl-49, y Hw m <sup>2</sup> g <sup>4</sup> (Mohr)
601 Df(1)N264-39	Df(1)N264-39 w <sup>ch</sup> /dl-49, y Hw m <sup>2</sup>
602 Df(1)N264-105	Df(1)N264-105(dm)/dl-49, y Hw m <sup>2</sup> g <sup>4</sup>
* Df(1)rst <sup>2</sup>	(82)
603 Df(1)svr	Df(1)svr, Dp(1;f)101 (Dp. het. or hom.)
604 Df(1)t282-1	Df(1)t282-1, y t-/dl-49, y Hw m <sup>2</sup> g <sup>4</sup>
605 Df(1)w258-45	Df(1)w258-45, y/dl-49, y Hw m <sup>2</sup> g <sup>4</sup>
606 Df(1)w258-48	Df(1)w258-48/dl-49, m <sup>2</sup> g <sup>4</sup>
607 Df(Y)ybb-	Df(Y)ybb-, y <sup>2</sup> eq
608 Df(Y)ybb-rev	YlS su <sup>3</sup> -s eq; ybb-rev/y w bb Y <sup>bb</sup> -rev
609 Df(Y)st	we bbl <sup>1</sup> w <sup>e</sup> bbl <sup>1</sup> ; Y <sup>st</sup> & w <sup>e</sup> bbl <sup>1</sup> ; Y +; NS, px sp/ <u>1</u> mr <sup>2</sup>
	(Bridges)
610 Df(Y)Y"	XY', g <sup>2</sup> B; Y"/y; Y" (Het. In(2R)Cy) (Stern)
611 Df(2)42	Df(2)42, en/Cy, al <sup>2</sup> lt <sup>3</sup> L <sup>4</sup> sp <sup>2</sup>
612 Df(2)al	Df(2)al/Cy, E-S
613 Df(2)bw <sup>5</sup>	Df(2)bw <sup>5</sup> sp <sup>2</sup> /Xa
614 Df(2)bw <sup>VLe2</sup> L Cy <sup>R</sup>	Df(2)bw <sup>VDe2</sup> Cy <sup>R</sup> /Gla
615 Df(2)M33a	Df(2)M33a/Pm <sup>2</sup>
616 Df(2)MB	Df(2)MB/Cy, al <sup>2</sup> lt <sup>3</sup> L <sup>4</sup> sp <sup>2</sup>
617 Df(2)MS <sup>2</sup>	Df(2)MS <sup>2</sup> /Cy, pr
618 Df(2)MS4	Df(2)MS4/Cy, L <sup>4</sup> sp <sup>2</sup>
619 Df(2)MS8	Df(2)MS8/Cy, al <sup>2</sup> lt <sup>3</sup> L <sup>4</sup> sp <sup>2</sup>
620 Df(2)MS10	Df(2)MS10/Cy, pr
621 Df(2)Px	Df(2)Px/Df(2)P; Dp(2;3)P/In(3R)Mo, Sb sr; w <sup>e</sup>



622 Df(2)Px <sup>2</sup>	Df(2)Px <sup>2</sup> , bw sp/Cy, al <sup>2</sup> lt <sup>3</sup> L <sup>4</sup> sp <sup>2</sup>
623 Df(2)rl <sup>10a</sup>	Df(2r)rl <sup>10a</sup> lt cn/Pm, ds <sup>33k</sup>
624 Df(2)S <sup>2</sup>	Df(2)S <sup>2</sup> /Cy E-S
625 Df(2)S <sup>3</sup>	Df(2)S <sup>3</sup> /Dp(2;2)A, Cy, E-S
626 Df(2)S <sup>3</sup>	Df(2)S <sup>3</sup> /Cy, L <sup>4</sup> sp <sup>2</sup>
627 Df(2)vg <sup>B</sup>	Df(2)vg <sup>B</sup> /Cy, L <sup>4</sup> sp <sup>2</sup>
628 Df(2)vg <sup>C</sup>	Df(2)vg <sup>C</sup> /Rvd
629 Df(2)vg <sup>S</sup>	Df(2)vg <sup>S</sup> , Cn/Cy, al <sup>2</sup> lt <sup>3</sup> L <sup>4</sup> sp <sup>2</sup>

Deficiencies-3

* Df(3)Ly	(448,449)
630 Df(3)MS31	Df(3)MS31/T(2;3)Mé
631 Df(3)sbd <sup>105</sup>	Df(3)sbd <sup>105</sup> /Xa

Deficiencies-4

632 Df(4)M4	Df(4)M4/ey <sup>D</sup>
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Duplications

633 Dp(1;f)101	In(1)sc <sup>8</sup> , Df(0+ac)w <sup>a</sup> sc <sup>8</sup> Dp(1;f)101
* Dp(1;f)101	(603)
634 Dp(1;f)107	In(1)sc <sup>8</sup> , Df(0+ac)w <sup>a</sup> sc <sup>8</sup> ; Dp(1;f)107
635 Dp(1;f)118	In(1)sc <sup>8</sup> , Df(0+ac)w <sup>a</sup> sc <sup>8</sup> ; Dp(1;f)118
636 Dp(1;f)135	In(1)sc <sup>8</sup> , Df(0+ac)w <sup>a</sup> sc <sup>8</sup> ; Dp(1;f)135 y <sup>2</sup>
637 Dp(1;f)Xc <sup>2</sup>	Dp(1;f)Xc <sup>2</sup> y <u>1(1)7/y 1(1)7</u>
638 Dp(1;1)112	y f, Dp(1;1)112 (homozygous stock)
639 Dp(1;Y <sup>L</sup> )sc <sup>S1</sup>	sc <sup>S1</sup> .Y <sup>L</sup> /y.Y <sup>S</sup> ; y f:=; cn bw (e)
640 Dp(1;3)126	v f ; Dp(1;3)126/Payne Dfd ca
641 Dp(Y;1)Su-4	B bb, Dp(Y;1)Su-4 (Stern)
642 Dp(2;2)S	Dp(2;2)S (+ast) (+ast) ho (hom.)
643 Dp(2;2)S	Dp(2;2)s (S ast) (S ast <sup>4</sup> ) net dp cl/Cy, E-S
644 Qn(2;2)S	Qn(2;2)S, (+ast) <sup>5</sup> , al ho/Cy, S <sup>2</sup> E-S

InversionsInversions-X

645 In(1)AB	In(1)AB/y v f
* In(1)AM	(9, 37, etc.)
646 In(1)B <sup>M1</sup>	In(1)B <sup>M1</sup> v (tan-like)
647 In(1)B <sup>M2</sup>	In(1)B <sup>M2</sup> v+ (rev)
648 In(1)B <sup>M2</sup>	In(1)B <sup>M2</sup> (rev) f <sup>B</sup> <u>1 5</u> (rein.; mosaic)
649 In(1)B <sup>M2</sup>	In(1)B <sup>M2</sup> f <sup>B27</sup> /C1B (mosaic in f/f <sup>27</sup> )
* In(1)bb-	(595,596)
* In(1)C1	(In C1B in 6, 47, 51)
650 In(1)dl-49	dl-49, cm <sup>2</sup>
651 In(1)dl-49	dl-49, ty-1
652 In(1)dl-49	dl-49, ty-1 bb <sup>1</sup> /y v f car
653 In(1)dl-49	dl-49, v <sup>0</sup> f
654 In(1)dl-49	dl-49, y fa <sup>n</sup>
* In(1)dl-49	(y Hw m <sup>2</sup> g <sup>4</sup> in 57, etc.)
655 Ins(1)dl-49, B <sup>M1</sup>	In(1)dl-49, sc y B <sup>M1</sup> (homozygous)
656 In(1)N264-84	In(1)N264-84, y/dl-49, y Hw m <sup>2</sup> g <sup>4</sup>
657 In(1)rst <sup>3</sup>	In(1)rst <sup>3</sup> , rst <sup>3</sup> (homozygous)
658 In(1)rst <sup>3</sup>	In(1)rst <sup>3</sup> , y rst <sup>3</sup> car bb
659 In(1)sc <sup>4</sup>	In(1)sc <sup>4</sup> , y sc <sup>4</sup>
660 Ins(1)sc <sup>4</sup> sc <sup>8</sup> , y	Ins(1)sc <sup>4</sup> , sc <sup>8</sup> , y/yf:=
661 In(1)sc <sup>7</sup>	In(1)sc <sup>7</sup> , sc <sup>7</sup>

662 In(1)sc <sup>7</sup>	In(1)sc <sup>7</sup> , sc <sup>7</sup> , wa
663 In(1)sc <sup>7</sup>	In(1)sc <sup>7</sup> , sc <sup>7</sup> wa fa <sup>2</sup> sn <sup>3</sup> v
* In(1)sc <sup>7</sup> , AM	(594)
664 Ins(1)sc <sup>7</sup> , B <sup>M1</sup>	Ins(1)sc <sup>7</sup> , B <sup>M1</sup> , w <sup>43b</sup> /yf:=
665 In(1)sc <sup>8</sup>	In(1)sc <sup>8</sup> , sc <sup>8</sup>
666 In(1)sc <sup>8</sup>	In(1)sc <sup>8</sup> , sc <sup>8</sup> cv v f/y f:=
667 In(1)sc <sup>8</sup>	In(1)sc <sup>8</sup> , y <sup>3ld</sup> sc <sup>8</sup> wa
668 Ins(1)sc <sup>8</sup> , S	Ins(1)sc <sup>8</sup> , S, sc <sup>8</sup> wa B sc <sup>8</sup> (=Muller-5)
* Inc(1)sc <sup>8</sup> dl-49	(with y <sup>3ld</sup> wa lz <sup>S</sup> B in 13, 24, 26, etc.)
669 In(1)sc <sup>9</sup>	In(1)sc <sup>9</sup> , sc <sup>9</sup> Bx f t wa/w dl-49 lz <sup>S</sup>
670 In(1)sc <sup>J1</sup>	In(1)sc <sup>J1</sup> , Del 24
671 In(1)sc <sup>260-14</sup>	In(1)sc <sup>260-14</sup> , sc <sup>260-14</sup>
672 In(1)sc <sup>260-22</sup>	In(1)sc <sup>260-22</sup> , sc <sup>260-22</sup>

#### Remaining X-chromosome inversion stocks

673 In(1)w <sup>m4</sup>	In(1)w <sup>m4</sup> (bb?)
674 In(1)y <sup>4</sup>	In(1)y <sup>4</sup> , y <sup>4</sup>

#### Inversions-2

675 In(2)bw <sup>VDe1</sup>	In(2)bw <sup>VDe1</sup> /b lt <u>1</u> cn mi sp
676 In(2)bw <sup>VDe2</sup>	In(2)bw <sup>VDe2</sup> /Rev. <u>1</u>

#### 2L Inversions

677 In(2L)Cy	In(2L)Cy, al <sup>2</sup> ast <sup>3</sup> b pr (Cy not present)
* In(2L)Cy	(with Cy dp <sup>2</sup> b pr in 251, 305, etc.)
* In(2L)Cyt	(with Su-S dp <sup>2</sup> pr in 250, 355)
* In(2L)ho	(725)
* In(2L)NS	(274)
678 In(2L)t	In(2L)t, lt <u>1</u> L <sup>4</sup> sp <sup>2</sup> /Pm, ds <sup>33k</sup>
* In(2L)t	(with <u>1</u> (2)B in 296, with <u>1</u> (2)R in 304)

#### 2L+2R Inversions

* Ins(2L+2R)Cy	(in balancers as Cy; Cy S <sup>2</sup> and Cy, S <sup>2</sup> E-S; S <sup>2</sup> and S <sup>2</sup> E-S do not carry Curly mutant)
* Ins(2L+2R)Cy, (2R)bw <sup>V34</sup> , Cy	(186,302,303)
* Ins(2L)Cy, (2R)NS, Cy	(312)
679 Ins(2L+2R)NS	NS, mr/Cy
* Ins(2L+2R)NS	(with px sp in 609)

#### 2LR Inversions

* In(2LR)dp	(203,205)
* In(2LR)Gla	(317,357)
* In(2LR)Pm	(with ds <sup>33k</sup> in 243, etc.)
* In(2LR)Pm <sup>2</sup>	(306, etc.)
* In(2LR)Rvd	(188,628)
* In(2LR)U	(220)
* In(2LR)Rev	(676)

#### 2R Inversion

* In(2R)Cy	(308)
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#### Inversions-3

##### 3L Inversions

* In(3L)D	(D and D <sup>3</sup> stocks)
680 In(3L)p <sup>mot-36e</sup>	In(3L)p <sup>mot-36e</sup> /R
* In(3L)P	(with gm in 477; with Mé in 501, etc.)



3L+3R Inversions

\* Ins(3L+3R)P (as LVM, Payne; and Payne Dfd ca)

3LR Inversions

\* In(3LR)Cx, D (426, 427, etc.)  
631 In(3LR)sep In(3LR)sep, ri pP

3R Inversions

682 In(3R)Antp<sup>B</sup> In(3R)Antp<sup>B</sup>, Antp<sup>B</sup>/TM1, Mé ri  
\* In(3R)C (with cd in 496, with e in 437, with e 1(3)e in 450, with Sb e 1(3)e in 456)  
685 In(3R)Dl<sup>B</sup> In(3R)Dl<sup>B</sup>, st Dl<sup>B</sup>/In(3R)P<sup>W</sup>, st 1(3)W ca  
\* In(3R)Cyd (419, 453)  
\* In(3R)hp (436)  
684 In(3R)Hu In(3R)Hu, Hu Sb<sup>Sp1</sup>/Payne  
685 In(3R)Mo In(3R)Mo, sr/Xa, ca  
\* In(3R)Mo (with Sb sr in 414, 577, etc.)  
686 In(3R)P In(3R)P<sup>FLA</sup> (homozygous)  
\* In(3R)P (with st 1(3)W ca in 683)

TranslocationsTranslocations-1;2

637 T(1;2)Bld T(1;2)Bld, Bld/C1B (carries In(2R)Cy)  
688 T(1;2)f257-5 T(1;2)f257-5/In(1)AM (Demerec)  
689 T(1;2)lt T(1;2)lt/Cy (carries eq. possibly su<sup>3</sup>-s)  
690 T(1;2)N264-10 T(1;2)N264-10/y w dm (=N<sup>10</sup>)  
691 T(1;2)sc<sup>S2</sup> T(1;2)sc<sup>S2</sup>/Cy  
692 T(1;2)wy274-2 T(1;2)wy274-2, w<sup>a</sup> sn B/In(1)AM

Translocations-1;3

693 T(1;3)263-4 T(1;3)263-4, y sc B<sup>1</sup>/In(1)AM  
694 T(1;3)283-3 T(1;3)283-3/w<sup>e</sup> sn  
695 T(1;3) "Del 143" T(1;3)"Del 143" ru e<sup>S</sup> ca/D, CxF, ru h ca  
696 T(1;3)N264-6 T(1;3)N264-6 y/y w dm(=N<sup>6</sup>)  
697 T(1;3)04 T(1;3)04/C1B  
698 T(1;3)05 T(1;3)05 D/yf:  
699 T(1;3)sc<sup>J4</sup> (1 y ac) sc<sup>8</sup> w<sup>3</sup>; T(1;3)sc<sup>J4</sup> L.  
700 T(1;3)sc260-15 T(1;3)sc260-15/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
701 T(1;3)v T(1;3)v, sc cv v f/In(1)y<sup>4</sup>, y<sup>4</sup> sn w<sup>a</sup> ("hi-non")  
702 T(1;3)w<sup>Vco</sup> T(1;3)w<sup>Vco</sup>, v f/C1B<sup>36d</sup>

Translocations-1;4

703 T(1;4)A13 T(1;4)A13/y w  
704 T(1;4)B<sup>S</sup> T(1;4)B<sup>S</sup>/y f:=; bw; e; ci ey<sup>R</sup>  
705 T(1;4)N<sup>8a</sup> T(1;4)N<sup>8a</sup>/dl-49 w lz<sup>S</sup>  
706 T(1;4)sc<sup>8</sup> T(1;4)sc<sup>8</sup>, B w<sup>a</sup>/y f:=  
707 T(1;4)w<sup>m5</sup> T(1;4)w<sup>m5</sup>  
708 T(1;4)w<sup>m5</sup>(1;3)sc<sup>J4</sup> T(1;4)w<sup>m5</sup>, T(1;3)sc<sup>J4R</sup> (C1B)  
709 T(1;4)w<sup>VD3</sup> (=w<sup>258-21</sup>) T(1;4)w<sup>VD3</sup>/Ins(1)sc<sup>8</sup>, dl-49, y<sup>3ld</sup> w<sup>a</sup> lz<sup>S</sup> B  
710 T(1;4)w<sup>258-18</sup> T(1;4)w<sup>258-18</sup> y/y w dm

Translocations-Y;2

\* T(Y;2)A (290)  
711 T(Y;2)A T(Y;2)B/bc  
\* T(Y;2)C (232, 234)

\* T(Y;2)E (228)  
 \* T(Y;2)G (199)  
 \* T(Y;2)J (331)  
 712 T(Y;2)rl T(Y;2)rl, lt cn/b lt bw

Translocations-Y;2;3

\* T(Y;2;3)F (481)  
 \* T(Y;2;3)I (359)

Translocations-2;3

713 T(2;3)101 al T(2;3)101 sp<sup>2</sup>/Cy L<sup>4</sup> sp<sup>2</sup>  
 714 T(2;3)101 ru h T(2;3)101 e<sup>4</sup> ro ca/Payne, Dfd ca  
 715 T(2;3)108 al T(2;3)108 c sp<sup>2</sup>/Cy, al<sup>2</sup> lt<sup>3</sup> L<sup>4</sup> sp<sup>2</sup>  
 716 T(2;3)109 T(2;3)109 p<sup>D</sup>/Payne Dfd ca  
 717 T(2;3)A Bl T(2;3)A; ru h D TA ss e<sup>S</sup>/Payne  
 718 T(2;3)B al Bl T(2;3)B sp<sup>2</sup>/Cy, L<sup>4</sup> sp<sup>2</sup>  
 719 T(2;3)B T(2;3)B; ru h D TB as e<sup>S</sup>/Payne  
 720 T(2;3)bw<sup>V4</sup> T(2;3)bw<sup>V4</sup>/Cy  
 721 T(2;3)bw<sup>V5</sup> T(2;3)bw<sup>V5</sup>/Cy  
 722 T(2;3)bw<sup>VDe3</sup> T(2;3)bw<sup>VDe3</sup>/Cy, ru h st ca  
 723 T(2;3)bw<sup>VDe4</sup> T(2;3)bw<sup>VDe4</sup>/Cy, dp<sup>2</sup>  
 724 T(2;3)C Bl T(2;3)C; ru h D TC ss e<sup>S</sup>/Payne  
 725 T(2;3)dpl50 In(2L)ho T(2;3)dpl50/Cy, E-S  
 726 T(2;3)E T(2;3)E/Cy; D  
 \* T(2;3)Me (424, 490)  
 \* T(2;3)P (621)  
 727 T(2;3)p<sup>Gr</sup> T(2;3)p<sup>Gr</sup>/Cy  
 728 T(2;3)Dp-S T(2;3)Dp-S; ho/Cy, E-S (hom. viable)  
 729 T(2;3)Xa T(2;3)Xa/1(3)Xa R  
 \* T(2;3)Xa (in 495, 511, etc.; with ca in 425)

Translocations-2;4

730 T(2;4)a T(2;4)a/Cy, pr; ey<sup>2</sup>  
 731 T(2;4)ast<sup>V</sup> T(2;4)ast<sup>V</sup>/Cy al<sup>2</sup> lt<sup>3</sup> L<sup>4</sup> sp<sup>2</sup> (L<sup>4</sup> reverted)  
 732 T(2;4)b T(2;4)b/Cy, pr; ey<sup>2</sup>  
 733 T(2;4)d al dp T(2;4)d px sp/Cy pr; ey<sup>2</sup>  
 734 T(2;4)d T(2;4)d/Cy, pr

Translocations-3;4

735 T(3;4)a D T(3;4)a/Me  
 736 T(3;4)c T(3;4)c/Payne, Dfd ca  
 737 T(3;4)e T(3;4)e, D/Me  
 738 T(3;4)e h th st T(3;4)e cu sr e<sup>S</sup> ca/Payne, Dfd ca  
 739 T(3;4)f T(3;4)f, h th st cu sr e<sup>S</sup> ca/Payne, Dfd ca  
 740 T(3;4)f T(3;4)f/Me

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Wild Stocks

a1 Canton-S	a7 Tuscaloosa	b4 dim/dl-49, y Hw m <sup>2</sup> g <sup>4</sup>
a2 Florida-9	a8 Urbana-S	b5 Dp(1;1)Co
a3 Lausanne-S	<u>Chromosome 1</u>	b6 Dp(1;1)Co; Df(1)rst <sup>2</sup> /y w bb
a4 Oregon-R-S	b1 Ax	b7 ec ct <sup>6</sup> v g <sup>3</sup> /ClB
a5 Seto Japan	b2 car bb	b8 gt bb <sup>11</sup> /ClB
a6 Swedish-b-6	b3 cv f	b9 gt w <sup>a</sup>
		b10 gt w <sup>a</sup> spl



b11 N<sup>8</sup>/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
 b12 pn<sup>2</sup>  
 b13 rb cx  
 b14 spl rbS<sup>2</sup>  
 b15 su-w<sup>a</sup> wa  
 b16 svr su-w<sup>a</sup> wa  
 b17 svr w<sup>a</sup>  
 b18 w  
 b19 w rst<sup>3</sup> f m/M-5  
 b20 wa  
 b21 w<sup>a</sup> spl  
 b22 wa<sup>2</sup>  
 b23 wa<sup>5</sup>  
 b24 wa<sup>4</sup>  
 b25 wbf f<sup>5</sup>  
 b26 wbl  
 b27 wcol  
 b28 we  
 b29 we<sup>2</sup>  
 b30 wh  
 b31 w<sup>sat</sup>  
 b32 wt fw  
 b33 w<sup>50il9</sup>  
 b34 y spl rbS<sup>2</sup>  
 b35 y w spl  
 b36 y<sup>2</sup>  
 b37 y<sup>2</sup> su-wa  
 b38 y<sup>2</sup> su-wa w  
 b39 y<sup>2</sup> su-wa wa  
 b40 y<sup>2</sup> su-wa wa spl  
 b41 y<sup>2</sup> su-wa wa<sup>2</sup>  
 b42 y<sup>2</sup> su-wa wa<sup>4</sup>  
 b43 y<sup>2</sup> su-wa wbf  
 b44 y<sup>2</sup> su-wa wbl  
 b45 y<sup>2</sup> su-wa wco  
 b46 y<sup>2</sup> su-wa wcol  
 b47 y<sup>2</sup> su-wa wh  
 b48 y<sup>2</sup> su-wa w<sup>sat</sup>  
 b49 y<sup>2</sup> su<sup>2</sup>-wa wa  
 b50 y<sup>2</sup> v  
 b51 y<sup>2</sup> wa  
 b52 y<sup>2</sup> wa cv v f B  
 b53 y<sup>2</sup> wa rbS<sup>1</sup>  
 b54 y<sup>2</sup> wa rbS<sup>1</sup> m/Oregon R bb; Y  
 b55 y<sup>2</sup> wa spl  
 b56 y<sup>2</sup> wa v  
 b57 y<sup>2</sup> eq; Df(Y)Y<sup>-bb</sup>  
 b58 Dp(1;f)135, y<sup>2</sup>; y w bb

Chromosome 2

c1 al b c sp<sup>2</sup>  
 c2 al dp pr (px)  
 c3 b cn bw  
 c4 b lt bw  
 c5 b lt L<sup>4</sup> bw  
 c6 b pr c  
 c7 Bl/esc  
 c8 Bl stw<sup>48</sup> blt tuf/Cy sp<sup>2</sup>

c9 bw<sup>D</sup>  
 c10 Df(2)bw<sup>5</sup>/Cy dp<sup>2</sup>  
 c11 G<sup>rev</sup>/Cy dp<sup>2</sup>  
 c12 In(2IR)Gla/Cy  
 c13 Df(2)MS8/Cy, al<sup>2</sup> lt<sup>3</sup> Dp(2;2)41 L<sup>4</sup> sp<sup>2</sup>  
 c14 Df(2)MS10/Cy pr, Dp(2;2)41<sup>2</sup>  
 c15 Df(2)rl<sup>10a</sup> lt cn/Cy  
 c16 Df(2)rl<sup>10b</sup> lt cn/Cy, al<sup>2</sup> lt<sup>3</sup> L<sup>4</sup> sp<sup>2</sup>  
 c17 ds S G b pr/Cy, al<sup>2</sup> lt<sup>3</sup> L<sup>4</sup> sp<sup>2</sup>  
 c18 dw-24F/Cy sp<sup>2</sup>  
 c19 l(2)mat/Cy  
 c20 L<sup>2</sup>  
 c21 lt<sup>3</sup> Dp(2;2)41 L<sup>4</sup> sp<sup>2</sup> In(2R)Cy/Pm<sup>1</sup>,  
 ds<sup>33k</sup>  
 c22 Pin  
 c23 Pm<sup>2</sup>/mi sp<sup>2</sup>  
 c24 stw<sup>3</sup>  
 c25 U/cg c  
 c26 vg

Chromosome 3

d1 D<sup>3</sup> H/Payne  
 d2 D<sup>3</sup> ri p<sup>p</sup> H/Payne  
 d3 dwh/Payne Dfd ca  
 d4 e<sup>4</sup> w<sup>o</sup> ro  
 d5 Gl Sb H/Payne  
 d6 in p<sup>p</sup>  
 d7 ri p<sup>p</sup>  
 d8 ru cu ca Pr/T(2;3)Me  
 d9 (ru) h th st cu sr e<sup>s</sup> ca  
 d10 se ss k e<sup>s</sup> ro  
 d11 seS<sup>1</sup>lj  
 d12 Ser/In(3R)C, e 1(3)e  
 d13 Tiny/+

Chromosome 4

e1 ar/ey<sup>D</sup>  
 e2 bt  
 e3 Cat/ci<sup>D</sup>  
 e4 sv<sup>n</sup>

Closed-X

f1 X<sup>c</sup>, y/f B

Inversions

g1 In(1)rst<sup>3</sup>, rst<sup>3</sup>  
 g2 In(1)rst<sup>3</sup>, y rst<sup>3</sup> car bb  
 g3 In(1)sc<sup>4</sup>, y sc<sup>4</sup>  
 g4 Ins(1)sc<sup>8</sup>, dl-49, y<sup>3ld</sup> wa lz<sup>s</sup> B/br we  
 ec rb t<sup>4</sup>  
 g5 In(1)sc<sup>L8</sup>, sc<sup>L8</sup> car m wa/y w dl-49  
 lz<sup>sp</sup>  
 g6 In(1)sc<sup>8</sup>, wa  
 g7 In(1)y sc<sup>4</sup> sc<sup>8</sup> (bbDef G); Y's extra  
 g8 In(1)sc<sup>10</sup>, wa  
 g9 In(1)sc<sup>10-1</sup>/y Hw  
 g10 In(1)w<sup>m4</sup> Oregon R-1

gl1 In(1)<sup>w<sup>m4</sup></sup>; Oregon R autosomes; Y's  
 gl2 In(1)<sup>w<sup>m4w</sup></sup> extra  
 gl3 In(1)<sup>w<sup>m4w</sup></sup>; y<sup>Su-Y</sup> extra  
 gl4 In(1)<sup>w<sup>m4w</sup></sup>; Df(Y)Y<sup>-bb</sup>  
 gl5 In(1)y<sup>4</sup>, cv v f  
 gl6 In(2)41.59, bw<sup>D</sup>/Cy

#### Translocations

h1 Y<sup>SX.Y<sup>L</sup></sup>, +/y<sup>2</sup> su-w<sup>a</sup> w<sup>a</sup> bb  
 h2 ab<sup>2</sup>/T(Y;2)E  
 h3 y; bw/T(Y;2)E  
 h4 Pm'/T(Y;2)G  
 h5 px bw sp/T(Y;2)J  
 h6 T(1;2)lt/In(1)sc<sup>8</sup> dl-49, y<sup>3ld</sup> w<sup>a</sup> lz<sup>S</sup> B; Cy  
 h7 T(1;2)N264-10/y w dim; Y's extra  
 h8 T(1;2)N264-10/y w dim  
 h9 T(1;4)w<sup>m5</sup>/w; ci ey<sup>R</sup>  
 h10 T(1;4)w<sup>m5</sup> L.w<sup>VD3</sup> R/y<sup>2</sup> w<sup>a</sup> Co; ci ey<sup>R</sup>  
 h11 T(1;4)N<sup>8a</sup> L.w<sup>m5</sup> R/ci ey<sup>R</sup>  
 h12 T(1;4)w<sup>VD3</sup>/Ins(1)dl-49, sc<sup>8</sup>, y<sup>3ld</sup> w<sup>a</sup> B; Y's extra  
 h13 T(1;4)w<sup>VD3</sup>/y<sup>2</sup> w<sup>a</sup> Dp(1;1)Co  
 h14 T(1;4)w<sup>VD3</sup>/y<sup>2</sup> w<sup>a</sup> Dp(1;1)Co; ci ey<sup>R</sup>  
 h15 T(1;4)y w258-18/y w dim  
 h16 T(1;4)y w258-18 L.w<sup>m5</sup> R/ci ey<sup>R</sup>  
 h17 T(2;3)bw<sup>VD3</sup>, ru h st ca/Cy; ru h st ca  
 h18 bw<sup>D</sup> T(2;3)289/Cy; In(3R)Mo, Sb sr  
 h19 T(2;4)ast<sup>v</sup>/Cy, al<sup>2</sup> lt<sup>3</sup> L<sup>4</sup> sp<sup>2</sup>  
 h20 In(1)<sup>w<sup>m4</sup></sup>; T(2;4)Su-Var 2/Cy cn<sup>2</sup>  
 h21 T(2;3;4)295, bw<sup>D</sup>/Cy; H  
 h22 T(Y;3)In(1)<sup>w<sup>m4</sup></sup>; Y's extra  
 h23 T(Y;3)40K; In(1)<sup>w<sup>m4</sup></sup>; rl

#### Multichromosomal Stocks

i1 B; b pr c  
 i2 v; bw  
 i3 w<sup>a</sup>; D Cx/tra  
 i4 In(1)sc<sup>4</sup>.sc<sup>8</sup>, y; Cy, bw<sup>V34k</sup>/ds rl; Y's extra  
 i5 In(1)<sup>w<sup>m4</sup></sup>, y<sup>44d</sup>; Cy/+; Y's extra  
 i6 In(1)<sup>w<sup>m4</sup></sup>; Cy/T(Y;2)G  
 i7 y; bw; e; ci ey<sup>R</sup>  
 i8 Cy/Pm', ds<sup>33k</sup>; H/In(3R)Mo, Sb sr(2;3)  
 i9 L<sup>2</sup>/+; Sb/+

#### Enhancers and Suppressors of Variegation

j1 In(1)E-Var 1, y w Dp(1;1)Co/y w dim  
 j2 In(1)<sup>w<sup>m4</sup></sup>; E-var 3/Pm' (Pm' lost)  
 j3 In(1)<sup>w<sup>m4</sup></sup>, y<sup>511</sup>; E-Var 4/Cy  
 j4 In(1)<sup>w<sup>m4</sup></sup>; E-Var 5/Cy  
 j5 In(1)<sup>w<sup>m4</sup></sup>; E-Var 6  
 j6 In(1)<sup>w<sup>m4</sup></sup>; E-Var 7/Cy

j7 In(1)<sup>w<sup>m4</sup></sup>; E-Var 8/Cy  
 j8 w; Cy/E-Var 8<sup>46g</sup>  
 j9 w; Cy/E-Var 8<sup>46g</sup>; w<sup>vco</sup>/Cx  
 j10 In(1)sc<sup>8</sup>, sc<sup>8</sup> w<sup>a</sup>; Cy L<sup>4</sup>/E-Var 8<sup>46g</sup>  
 j11 In(1)<sup>w<sup>m4</sup></sup>; E-Var 8<sup>46g</sup>/Cy  
 j12 In(1)<sup>w<sup>m4</sup></sup>; E-Var 8<sup>46g</sup>/Cy; Y & w<sup>m4</sup> XYY; Cy/E-Var 8<sup>46g</sup>  
 j13 In(1)<sup>w<sup>m4</sup></sup>; E-Var 8<sup>46g</sup>/Cy; Y<sup>bb</sup> Su-Var 5  
 j14 In(1)<sup>w<sup>m4</sup></sup>; E-Var 11/+  
 j15 In(1)<sup>w<sup>m4</sup></sup>; E-Var 12/D Cx (Cy/+)  
 j16 In(1)<sup>w<sup>m4</sup></sup>; E-Var 12/D Cx; Y's extra (Cy/+)  
 j17 In(1)<sup>w<sup>m4</sup></sup>; E-Var 13/D Cx (Cy/+)  
 j18 In(1)<sup>w<sup>m4</sup></sup>; E-Var 15; Y's extra  
 j19 In(1)<sup>w<sup>m4</sup></sup>; E-Var 15; Y's extra  
 j20 In(1)<sup>w<sup>m4</sup></sup>; E-Var 16  
 j21 In(1)<sup>w<sup>m4</sup></sup>; E-Var 17/+  
 j22 T(1;2;3)E-Var 18, y w dim/y w dl-49, lz<sup>S</sup>  
 j23 T(1;2;3)E-Var 19, y w Dp(1;1)Co/In(1)sc<sup>8</sup>, dl-49 y<sup>3ld</sup> w<sup>a</sup> lz<sup>S</sup> B  
 j24 In(1)<sup>w<sup>m4</sup></sup>; y<sup>Su-Var</sup>/y w bb  
 j25 In(1)<sup>w<sup>m4</sup></sup>; Cy/+; Y<sup>bb</sup>Su-Var 5  
 j26 In(1)<sup>w<sup>m4</sup></sup>; T(2;4) Su-Var 2/Cy; Y's extra  
 j27 bw<sup>D</sup>/Cy, al<sup>2</sup> lt<sup>3</sup> Dp(2;2)L<sup>4</sup> sp<sup>2</sup>; Su-Var 4/+  
 j28 T(Y;3) Su-Var 3; Cy/T(2;3)bw<sup>VD3</sup>, ru h st ca  
 j29 In(1)<sup>w<sup>m4</sup></sup> Oregon-R2 XYY<sup>red</sup>  
 j30 B1 bw<sup>D</sup>; Su-283/T(2;3)Xa

#### Triploids

k1 bb/+ & + (Oregon-R and Canton-S ancestry)  
 k2 3N (from colchicine treated Oregon-R diploid)

#### Attached X's heterozygous for inversions

l1 y w In dl-49 bb & y<sup>2</sup> su-w<sup>a</sup> w<sup>a</sup>  
 y w bb  
 l2 In y<sup>4</sup>, cv v f bb & Dp(1;1)Co  
 y<sup>2</sup> su-w<sup>a</sup> w<sup>a</sup> bb  
 l3 y f:= bw, e, ci ey<sup>R</sup>

#### Special stocks isogenic with each other and with Oregon-R

p1 Oregon-R (I)  
 p2 Oregon-R ex w (X)  
 p3 B (C)  
 p4 B1/+ ♀ x Oregon-R ♂ (C)  
 p5 cv/+ ♀ x cv ♂ (C)  
 p6 cv/+ ♀ x cv ♂ (C)  
 p7 f Oregon-R (R)  
 p8 f<sup>rev</sup> +/f ♀ x f ♂ (X)  
 p9 f<sup>+511</sup>/f ♀ x f ♂ (A)



p10 gt Oregon-R (I)	p19 w <sup>a</sup> Oregon-R (C)
p11 gt w <sup>a</sup> Oregon-R(I)	p20 w <sup>48h</sup> Oregon-R (B)
p12 M998/Oregon-R ♀ x Oregon-R ♂ (B)	p21 y Oregon-R (I)
p13 rb <sup>S1</sup> Oregon-R (B)	p22 y Oregon-R (R)
p14 rb <sup>S2</sup> Oregon-R (B)	p23 y <sup>51g</sup> f Oregon-R (B)
p15 Sb/+ ♀ x Oregon-R ♂ (C)	p24 y w <sup>51a</sup> Oregon-R (A)
p16 v Oregon-R (I)	p25 <u>Oregon-R bb</u> Y & Oregon-R
p17 v Lausanne (I)	p26 <u>Oregon-R bb</u> Y & y cv v f
p18 v Oregon-R (R)	

SALT LAKE CITY, UTAH: UNIVERSITY OF UTAHWild Stocks

- 1 Canton-S
- 2 Lausanne-S
- 3 Oregon-R
- 4 Oregon-R-c (Df(2)Ore)
- 5 Stephenville

Chromosome 1 (X)

- 6 Ax
- 7 Ax<sup>42g</sup>/dl-49, v lz<sup>g</sup>
- 8 B
- 9 Co
- 10 ct
- 11 dm/C 1, y Hw
- 12 dm/dl-49, y Hw w<sup>48l</sup> m<sup>2</sup> g<sup>4</sup>
- 13 ec
- 14 ec ct<sup>6</sup> v f/y w f:=
- 15 f B<sup>3</sup>/y w f:=
- 16 fa
- 17 g
- 18 1(1)7/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>
- 19 lz<sup>s</sup>/y w f:=
- 20 rst<sup>2</sup>/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>
- 21 sd f B<sup>3</sup>/y w f:=
- 22 v f
- 23 v<sup>36f</sup> f<sup>36a</sup>
- 24 v<sup>43a</sup> f<sup>51a4</sup>/y w f:=
- 25 w
- 26 w spl
- 27 w<sup>a</sup>
- 28 w<sup>bl</sup>
- 29 w<sup>ch</sup>
- 30 w<sup>col</sup>
- 31 w<sup>e</sup>
- 32 w<sup>e</sup> spl
- 33 w<sup>h</sup>
- 34 w<sup>t</sup>
- 35 w<sup>48k</sup> (♀ sterile)/y w f:=
- 36 w<sup>48k28</sup>
- 37 y ac w<sup>co</sup> sn<sup>2</sup>/y f:=
- 38 y fa<sup>n</sup>, dl-49
- 39 y g<sup>2</sup> bb
- 40 y Hw sn<sup>3</sup>/y w f:=
- 41 y pn
- 42 y pn ec/y w f:=

- 43 y pn w<sup>e</sup> spl/y w f:=
- 44 y sc w m f<sup>5</sup>/y w f:=
- 45 y sc w spl
- 46 y sc w spl m f
- 47 y sc w<sup>e</sup> spl
- 48 y v
- 49 y w m f/y w f:=
- 50 y w sn<sup>3</sup>
- 51 y w sn<sup>3</sup> B
- 52 y w sn<sup>3</sup> m B/y w f:=
- 53 y<sup>2</sup> ec ct<sup>6</sup> m f
- 54 y<sup>2</sup> sd f car/y w f:=
- 55 y<sup>2</sup> w<sup>a</sup> ec ct<sup>6</sup> v f
- 56 y<sup>2</sup> w<sup>a</sup> m f

Chromosome 2

- 57 al
- 58 b
- 59 bw
- 60 bw st
- 61 c
- 62 d/Cy(2L), dp<sup>2</sup> b pr
- 63 dp
- 64 dp cn bw
- 65 dp<sup>o</sup>
- 66 L<sup>2</sup>
- 67 px
- 68 S/Cy(E-S)
- 69 v g<sup>49b2</sup> cn

Chromosome 3

- 70 Bd<sup>G</sup>/In(3R)C 1(3)a
- 71 bx<sup>34e</sup>/Payne, Dfd ca
- 72 ca
- 73 D/G1
- 74 e
- 75 p
- 76 p<sup>p</sup>
- 77 r h th st p<sup>p</sup> cu sr e<sup>s</sup>
- 78 r h th st cu sr e<sup>s</sup> Pr ca/T(2;3)Mé
- 79 ss<sup>a</sup>
- 80 st
- 81 th st cp

Chromosome 482 ar/ey<sup>D</sup>

83 ey

Multichromosomal84 su<sup>2</sup>-v, v; bw

85 wa; Cy/Pm

86 w<sup>481</sup>; M(3)w/In(3R)C, e 1(3)e

87 wa; th st cp

88 wa; Sb/DcxF

89 y<sup>Si</sup> sc<sup>8</sup> In(1)y<sup>3P</sup>; al<sup>2</sup> Cy lt<sup>3</sup> sp<sup>2</sup>/  
dp b Pm; ru h DcxF ca/Sb In(3R)90 y f:=; bw; e; ci ey<sup>R</sup>91 y<sup>bb</sup>; cn bw

92 Cy/Pm; Sb/DcxF

93 Cy/Pm ds<sup>33k</sup>; H/In(3R)Mo Sb sr94 bw; e; ci ey<sup>R</sup>Translocations

95 T(1;2)Bld/C1B

96 T(1;4)wm<sup>49a</sup>T0; ci97 T(1;4)wD<sup>3</sup>/cl-49, sc<sup>8</sup> y<sup>3ld</sup> wa lz<sup>6</sup> B98 T(2;3)Xa/H<sup>2</sup>Inversions99 In(1)dl-49, sc m<sup>2</sup> g<sup>4</sup>/y w f:=100 In(1)dl-49, y Hw g<sup>4</sup>/y w f:=101 In(1)dl-49, y Hw v m<sup>2</sup> g<sup>4</sup>/y w f:=102 In(1)dl-49, y Hw v m<sup>2</sup> g<sup>4</sup>/C1B103 In(1)dl-49, y Hw w<sup>481</sup> m<sup>2</sup> g<sup>4</sup>/y w f:=104 In(1)f<sup>257-4</sup>, y w<sup>48c22</sup> f<sup>257-4</sup>105 In(1)rst<sup>3</sup>, w rst<sup>3</sup> f v m/y w f:=106 In(1)rst<sup>3</sup>, y rst<sup>3</sup> bb car/y w f:=107 In(1)sc<sup>4</sup> sc<sup>8</sup>, y sc<sup>4</sup> f v cv sc<sup>8</sup>/  
y f:=108 In(1)sc<sup>8</sup>, sc<sup>8</sup>109 In(1)sc<sup>8</sup>, sc<sup>8</sup>/y w f:=110 In(1)sc<sup>8</sup> In dl-49, y<sup>Si</sup> sc<sup>8</sup> B f

dl-49 v

111 In(1)sc<sup>8</sup> In dl-49, y<sup>Si</sup> sc<sup>8</sup> f

dl-49 v wa

112 In(1)sc<sup>8</sup> InS, sc<sup>Si</sup> B InS wa sc<sup>8</sup>113 In(1)wm<sup>4</sup>, wm<sup>4</sup>114 In(1)wm<sup>4</sup>, wm<sup>4</sup> sn(♀ sterile)/

y w f:=

115 In(1)wm<sup>4</sup>, sn w116 In(1)wm<sup>4</sup>, y wm<sup>4</sup> m sn/y w f:=117 In(1)wm<sup>4</sup>, y m sn w118 In(1)w<sup>258-52</sup>, w<sup>258-52</sup> f<sup>49b15</sup>/dl-49, y Hw w<sup>481</sup> m<sup>2</sup> g<sup>4</sup>

119 In(2LR)Gla/Cy; y:=

120 In(2LR)Gla/Cy sp<sup>2</sup>

121 In(2LR)Cy/Pm

122 In(3L)Bit/Mé

123 Dp(1,1)112, y f Dp112

Special StocksNotches124 y N264-2/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>125 N264-8/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>126 y N264-32/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>127 y N264-34/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>

(T1;3L)

128 w<sup>ch</sup> N264-39/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>129 N264-40/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>130 y N264-47/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>131 y N264-53/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>

(T1.2L)

132 y N264-54/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>133 y N264-84/dl-49, y Hw m<sup>2</sup> g<sup>4</sup> (In)134 y N264-97/dl-49, Hw g<sup>4</sup>135 y N264-103/dl-49, Hw m<sup>2</sup> g<sup>4</sup>136 N264-105/dl-49, Hw m<sup>2</sup> g<sup>4</sup>137 y sc w N264-107/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>138 N264-109/dl-49, Hw m<sup>2</sup> g<sup>4</sup>139 y N264-111/dl-49, Hw m<sup>2</sup> g<sup>4</sup>140 N264-118/dl-49, Hw m<sup>2</sup> g<sup>4</sup>141 N264-126/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>white-Notches142 N<sup>8</sup> (Mohr)/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>143 y N264-58/dl-49, Hw m<sup>2</sup> g<sup>4</sup>144 N264-110/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>145 N<sup>50k11</sup>/dl-49, y Hw w<sup>481</sup> m<sup>2</sup> g<sup>4</sup>;Dp w<sup>+50k11</sup>146 N<sup>53a4</sup>/dl-49, y Hw w<sup>481</sup> m<sup>2</sup> g<sup>4</sup>white deficiencies147 y w<sup>258-11</sup>/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>148 y w<sup>258-42</sup>/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>149 y w<sup>258-45</sup>/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>150 w<sup>258-48</sup>/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>151 y w<sup>52a25c</sup>/dl-49, y Hw w<sup>481</sup> m<sup>2</sup> g<sup>4</sup>152 y w<sup>52a25d</sup> rst<sup>3</sup>/dl-49, y Hw w<sup>481</sup> m<sup>2</sup> g<sup>4</sup>153 y w<sup>52a29</sup> rst<sup>3</sup>/dl-49, y Hw w<sup>481</sup> m<sup>2</sup> g<sup>4</sup>154 y w<sup>52b12</sup> rst<sup>3</sup>/dl-49, y Hw w<sup>481</sup> m<sup>2</sup> g<sup>4</sup>155 y w<sup>52b13</sup> rst<sup>3</sup>/dl-49, y Hw w<sup>481</sup> m<sup>2</sup> g<sup>4</sup>156 y w<sup>52c31a</sup> rst<sup>3</sup>/dl-49, y Hw w<sup>481</sup> m<sup>2</sup> g<sup>4</sup>157 y w<sup>52c31b</sup> rst<sup>3</sup>/dl-49, y Hw w<sup>481</sup> m<sup>2</sup> g<sup>4</sup>158 In(1)wm<sup>4</sup> rst<sup>3</sup>, wm<sup>4</sup> car rst<sup>3</sup> (Df  
(w)3C2-3)/dl-49, y Hw w<sup>481</sup> m<sup>2</sup> g<sup>4</sup>159 In(1)wm<sup>4</sup> rst<sup>3</sup>, y wm<sup>4</sup> rst<sup>3</sup> (Df(w)  
3C2-3)/dl-49, y Hw w<sup>481</sup> m<sup>2</sup> g<sup>4</sup>Duplication-deficiency male stocks

160 Df(w)3C2-3 car; Dp N264-58/y w f:=



161 y Df(w)3C2-3; Dp N264-58/y w f:=	174 y sc w <sup>e</sup> N264-2; Dp w <sup>+51b7</sup> /y w f:=
162 Df(w)3C2-3 car; Dp w <sup>m49a7</sup> /y w f:=	175 y sc w <sup>e</sup> N264-8; Dp w <sup>+51b7</sup> /y w f:=
163 y Df(w)3C2-3; Dp w <sup>m49a7</sup> /y w f:=	176 y sc w <sup>e</sup> N264-97; Dp w <sup>+51b7</sup> /y w f:=
164 y Df(w)3C2-3; Dp w <sup>m49a7</sup> (homozygous)	177 y sc w <sup>e</sup> N264-118; Dp w <sup>+51b7</sup> /y w f:=
165 Df(w)3C2-3 car; Dp w <sup>m53a4</sup> /y w f:=	178 N50kl1; Dp w <sup>+51b7</sup> ; Dp w <sup>+50kl1</sup> / y w f:=
166 y Df(w)3C2-3; Dp w <sup>m53a4</sup> /y w f:=	179 Df(w)3C2-3; Dp w <sup>m52b13</sup> /y w f:=
167 Df(w)3C2-3 car; Dp w <sup>+50kl1</sup> / y w f:=	180 w258-48; Dp w <sup>m52b12</sup> /y w f:=
168 y Df(w)3C2-3; Dp w <sup>+50kl1</sup> /y w f:=	<u>Miscellaneous</u>
169 Df(w)3C2-3 car; Dp w <sup>m51c20</sup> / y w f:=	181 y w $\frac{1^{48g28}}{m^2 g^4}$ sn <sup>3</sup> bb <sup>D</sup> /dl-49, y Hw
170 y Df(w)3C2-3; Dp w <sup>m51c20</sup> /y w f:=	182 Y <sup>S</sup> ·In(1)EN·Y <sup>L</sup> , dl-49, y v f car/ <u>y<sup>2</sup> su-w<sup>a</sup> w<sup>a</sup> bb</u>
171 Df(w)3C2-3 car; Dp w <sup>+51b7</sup> / y w f:=	183 y w f, X·Y/double ring y m
172 y Df(w)3C2-3; Dp w <sup>+51b7</sup> /y w f:=	184 v f53a13/t w f:=
173 Df(w)52c22b; Dp w <sup>+51b7</sup> /y w f:=	

WEST LAFAYETTE, INDIANA: PURDUE UNIVERSITY,  
AGRICULTURAL EXPERIMENT STATION

Wild Stocks

61 inbred stocks (36-108 generations of full-sibbing)  
46 non-inbred stocks

ARGENTINA

Buenos Aires: Universidad de Buenos Aires, Facultad de Ciencias Exactas y  
Naturales, Cátedra de Citología y Genética

Wild Stocks

1 Buenos Aires  
2 Leningrad  
3 Mendoza

Chromosome 1

4 car  
5 ct<sup>6</sup> g<sup>2</sup>  
6 ct<sup>n</sup> ec/C1B  
7 f

8 m  
9 ras<sup>2</sup>  
10 scS1 B InS w<sup>a</sup> sc<sup>8</sup>  
11 w  
12 w<sup>e</sup>  
13 w<sup>e</sup> sn/C1B  
14 w<sup>w</sup> f<sup>5</sup>  
15 y  
16 y<sup>50a</sup>  
17 y<sup>50b25</sup>  
18 y f

19 y<sup>3</sup> w<sup>a</sup>  
20 y w  
21 ("sz<sup>+</sup>") Y<sup>1c</sup> / X.Y<sup>s</sup>  
22 ("sz w") Y<sup>1c</sup> / w.Y<sup>s</sup>

Chromosome 2

23 Ac  
24 Ac at  
25 at  
26 b<sup>50b</sup>  
27 b at

28 b cn  
 29 bw<sup>50b</sup>  
 30 cn bw<sup>50b</sup>  
 31 dp  
 32 hy a px sp/Cy sp<sup>2</sup>  
 33 mi/Pm<sup>2</sup>  
 34 vg<sup>50c</sup>

Chromosome 3

35 cd<sup>42h</sup>  
 36 e  
 37 e<sup>49l</sup>  
 38 e<sup>s</sup> cd ro cmp ca/  
 Xa ca

39 fl1  
 40 Gl Sb/LVM  
 41 ru<sup>50b</sup>  
 42 se<sup>42g</sup>  
 43 st sr e<sup>s</sup> ro ca; tu<sup>36a</sup>

Chromosome 4

44 ci ey<sup>R</sup>  
 45 sv<sup>n</sup>

Multichromosomal

46 Cy/Pm, ds<sup>33k</sup>; H/C, Sb  
 47 m; at

48 v; bw<sup>50b</sup>  
 49 v sc; at  
 50 w; vg  
 51 w; fl1  
 52 y; bw; ci ey<sup>R</sup>  
 53 y; bw; e; ci; ey<sup>2</sup>

Translocations

54 T(2;3)Xa ca/Sb

AUSTRALIA

Adelaide, South Australia: University of Adelaide, Waite Agricultural  
 Research Institute, Department of Genetics

Note: New stock list not received. See DIS-26, pp. 42-43.

Melbourne: The University of Melbourne, Department of Zoology

Note: Stock list unchanged. See DIS-26, p. 43.

Sydney: The University of Sydney, Faculty of Agriculture

Note: New stock list not received. See DIS-26, p. 44.

AUSTRIA

Vienna: Institut f. allgemeine Biologie d. Universität

Note: Stock list unchanged. See DIS-22, p. 40, Zool. Inst.

BELGIUM

Louvain: Université de Louvain, Institut Agronomique

Wild Stocks

1 Canton-Special  
 2 Oregon

Chromosome 2

4 vg  
 5 stw<sup>2</sup>

Multichromosomal

8 vg; e<sup>4</sup>  
 9 stw<sup>2</sup>; ri

Chromosome 1

3 B  
 4 w

Chromosome 3

6 e<sup>4</sup>  
 7 ri



BRAZIL

Curitiba, Paraná: Universidade do Paraná, Faculdade de Filosofia, Ciências e Letras, Laboratório de Genética

Wild Stocks

Belo Horizonte, Minas Gerais (5 strains)	Ilheus, Bahia (1)
Boa Esperança, Minas Gerais (2)	Irati, Paraná (4)
Cornélio Procopio, Paraná (1)	Itajaí, Santa Catarina (1)
Cuiabá, Mato Grosso (4)	Porto Alegre, Rio Grande do Sul (1)
Curitiba, Paraná (1)	Salvador, Bahia (2)
Esteio, Rio Grande do Sul (2)	São Paulo, São Paulo (2)
Florianópolis, Piauí (2)	Teixeira Soares, Paraná (1)
Gaspar, Santa Catarina (1)	Uberlândia, Minas Gerais (1)
	Várzea Grande, Mato Grosso (1)

CANADA

Montreal, Quebec: McGill University, Department of Genetics

Wild Stocks

1 Chicago

16 bw<sup>D</sup>

17 dp

18 vg

Chromosome 1

2 B

3 dy

4 m

5 m dy/y f:

6 m g

7 v dy

8 v g

9 v m g

10 w

11 w m

12 w<sup>e</sup> dy

13 w<sup>e</sup> m

Chromosome 2

14 b pr c px sp

15 bw

Chromosome 3

19 cl

20 ru h st p<sup>D</sup> ss e<sup>S</sup>

21 se h

Chromosome 4

22 ey

Multichromosomal

23 m<sup>D</sup>/C1B; bw; st

24 bw; st

25 bw<sup>59</sup>; st

26 bw<sup>75</sup>; st

27 bw<sup>81</sup>; st

28 px bw sp; st

29 px sp; st

Vancouver, B.C.: The University of British Columbia

Wild Stocks

1 Urbana-S

Chromosome 2

6 b pr c px sp

7 bw

8 dp

9 L/Cy

10 vg

Chromosome 3

11 e

Chromosome 4

12 ey

Attached X's

13 y and w

Multichromosomal

14 Cy/Pm; Sb/D

Chromosome 1

2 B

3 lz/C1B

4 m

5 w

CHILE

Santiago: Universidad de Chile, Instituto de Biología "Juan Noé"

<u>Wild Stocks</u>	<u>Chromosome 2</u>	
1 Canton-S	17 bw	33 st
2 Oregon-R-c	18 dp	34 st sr e <sup>s</sup> ro ca; tu-36a
3 Santiago	19 L <sup>2</sup>	35 theca
4 Swedish-b-6	20 lcal	<u>Chromosome 4</u>
	21 ml/Pm <sup>2</sup>	36 ey <sup>2</sup>
<u>Chromosome 1</u>	22 nw <sup>2</sup> /Cy	<u>Multichromosomal</u>
5 B	23 pr en	37 Cy/Pm, ds <sup>33k</sup> ; H/C, Sb
6 ct <sup>n</sup> ec/C1B	24 vg	38 dp; e <sup>ll</sup>
7 f	<u>Chromosome 3</u>	39 w; vg
8 sc	25 e <sup>ll</sup>	40 y; bw; e; ci; ey <sup>2</sup>
9 scSl B InS wa <sup>a</sup> sc <sup>8</sup>	26 G1/Payne	<u>Attached-X</u>
10 sc cv v f	27 G1 Sb/LVM	+ /sc <sup>2</sup> pn
11 v	28 ro	
12 w	29 se	
13 w m f	30 se e <sup>ll</sup>	
14 w m f/C1B	31 se e <sup>ll</sup> ; tu-49h	
15 y	32 ss	
16 y m		

FRANCE

Gif sur Yvette (S et O): Centre National de la Recherche Scientifique, Laboratoire de Génétique Evolutive and Laboratoire de Génétique Formelle

<u>Wild Stocks</u>		
1 Amiens	25 Ibadan	52 Tokyo 1
2 Argeles	26 Ischia	53 Tokyo 2
3 Banyuls 1	27 Israel	54 Urbana-S
4 Banyuls 2	28 Kammutijima	55 Victoria
5 Beaconsfield	29 Kattunda	56 Vuillafans
6 Beaulieu sur Dordogne	30 Kochii	57 Ware
7 Blois	31 Kumba	58 Yamagushi
8 Canton-S	32 Lyon	<u>Chromosome 1</u>
9 Challuz	33 Mildura	59 apr
10 Champetière (Inbred for 193 generations)	34 Mishima-Kansha	60 B
11 Charolles	35 Misy-sur-Yonne	61 ClB/w lz
12 Collioure	36 Nagasaki	62 f B
13 Crianlarich	37 Nettlebed	63 <u>l</u> (1)7/y Hw m <sup>2</sup> g <sup>4</sup> dl-49
14 Dimel South Western Cap	38 Northern Transvaal	64 g <sup>2</sup>
15 Dublin	39 Okanu	65 m
16 Edinburgh	40 Ore-R-C	66 Muller-5
17 Eket	41 Paris Ve	67 sc ec ct v g <sup>2</sup>
18 Fla	42 Perpignan	68 sc ec cv ct <sup>6</sup> v g f/C1B
19 Franche-Comté	43 Perpignan Clairra	69 sc z ec ct
20 Fukuoka	44 Renfrew	70 sc z <sup>17G2</sup> ec ct
21 Hallwood	45 Rothampsted	71 y
22 Hendon A	46 Roulans	72 y apr cv v f
23 Hendon B	47 Samarkand	73 y z ct
24 Hiroshima	48 Sapporo	74 <u>yy</u> /sc z w <sup>co</sup>
	49 Sendai	75 y w
	50 Shima	76 wbl
	51 Tamashima	



77 w <sup>ch</sup> wy	Chromosome 3	Closed-X
78 w <sup>co</sup>	102 Dcx <sup>F</sup> /Dfd	124 y f/X <sup>C2</sup> t
79 w <sup>e</sup>	103 e	125 y f/y z w <sup>P</sup>
80 z	104 Ly/D <sup>3</sup>	Deficiencies
81 z ClB/dl-49 z m <sup>2</sup> g <sup>4</sup>	105 p	126 Df(1, pn - z - w) z <sup>1</sup> /
82 zz/B	106 R/Mé	Dp(1 - 1)z <sup>4</sup>
Chromosome 2	107 se	127 Df(1, w) z <sup>6</sup> /dl-49 y
83 al dp b pr c px sp/ Cy pr (all)	108 se e	m <sup>2</sup> g <sup>4</sup>
84 b	109 se cp	Translocations
85 b bw	110 se cp e	128 T(1;2)z <sup>13G2</sup> sc ec ct/ z ClB
86 b cn	111 st	129 T(1;2)z <sup>14E9</sup> /dl-49 sc
87 b j cn	112 tr/Mé Sb	z m <sup>2</sup> g <sup>4</sup>
88 b vg	113 Tu	130 T(1;3)z <sup>7E8</sup> /dl-49 sc z
89 b vg bw	Chromosome 4	m <sup>2</sup> g <sup>4</sup>
90 bw	114 bt <sup>D</sup> /ci <sup>D</sup>	131 T(1;4)20 <sup>G1</sup> /y w f
91 cn	115 ci <sup>D</sup> /ey <sup>D</sup>	132 T(1;4)w <sup>m5</sup>
92 cn bw	Multichromosomal	133 T(2;3)Cy; D
93 Cy/B1 sp <sup>2</sup>	116 B; Tu	New Mutants and Rearrange-
94 fes lt/Cy al <sup>2</sup> lt <sup>3</sup> L <sup>4</sup> sp <sup>2</sup>	117 bw; e	ments
95 j	118 Cy/Pm; H/Sb C	134 z <sup>a</sup> y
96 L	119 f; b j cn	135 z w <sup>11E4</sup>
97 ltd	120 pr; st	
98 net b cn bw	121 v; bw	
99 ref (See "New Mutants")	122 y; bw; e; ci ey <sup>D</sup>	
100 vg	123 y v; bw	
101 vg bw		

Lyon: Faculté des Sciences, Laboratoire de Zoologie

Wild Stocks

Oregon

Lyon

Champetière (inbred)

Paris: Université de Paris, Laboratoire de Génétique

Note: New stock list not received. See DIS-26, p. 46.

GERMANY

Berlin-Buch: Institut für Medizin und Biologie, Genetische Abteilung

Wild Stocks	7 w <sup>e</sup>	17 y w <sup>a</sup> fa <sup>n</sup>	27 B
1 normal (Berlin wild)	8 w <sup>co</sup> sn <sup>2</sup>	18 y w bb	28 car bb Y; bb
2 normal (England)	9 w <sup>ch</sup> wy	19 y w B bb	29 car
Chromosome 1 (X)	10 w <sup>m4</sup>	20 y fa wy <sup>2</sup> g <sup>2</sup>	30 v
3 w	11 gt w <sup>a</sup>	21 f	31 cv
4 w sn <sup>3</sup>	12 y	22 sc	32 bb <sup>2</sup>
5 w <sup>bf</sup>	13 y <sup>303</sup>	23 sc rb cv	33 fa <sup>n</sup>
6 w <sup>a</sup>	14 y w	24 sc ec ct	34 yy/+
	15 y pn	25 spl	35 yy/w <sup>e</sup>
	16 y cv v f	26 m	36 yy/X <sup>C2</sup> f

37 <u>yy/y</u> cv ct v g f B	60 vg	79 w; vg; e <sup>ll</sup>
38 <u>yy/x<sup>c</sup></u>	61 V <sup>4</sup> Pr/Cy	80 w; e <sup>ll</sup>
39 <u>y w f/+</u>	62 bw cn	81 cn; ss
40 <u>y w f/B</u>	63 al dp	82 v; cn
41 <u>+/ClB</u>	64 "F <sub>1</sub> Cy only"	83 v; bw
42 v/ <u>ClB</u>		84 y <sup>Si</sup> sc <sup>3</sup> In <sup>S</sup> y <sup>3P</sup> ; al <sup>2</sup> Cy
43 we <u>bb<sup>1</sup>/ClB</u>	<u>Chromosome 3</u>	lt <sup>3</sup> sp <sup>2</sup> /dp b Pm <sup>1</sup> ; ru h
44 y w/ <u>ClB</u>	65 e <sup>ll</sup>	D InCxF ca/Sb In(3R)
45 y w/y <u>ClB</u>	66 st	85 fj px sp; p <sup>b</sup> /C Mé Sb C
46 sc ec cv ct <sup>6</sup> v s <sup>2</sup> f	67 p <sup>p</sup>	86 Cy al <sup>2</sup> lt <sup>3</sup> L <sup>4</sup> sp <sup>2</sup> /+;
car bb <sup>1</sup> / <u>ClB</u>	68 III-pl (ru st p <sup>p</sup>	C Mé Sb C/+
47 x <sup>c</sup> / <u>ClB</u>	ss e <sup>s</sup> )	87 e, originally CO <sub>2</sub> -
48 <u>17/dl-49</u> , y Hw w lz <sup>s</sup>	69 ru h st p <sup>p</sup>	sensitive (virus)
49 sc <sup>S1</sup> InS wa sc <sup>8</sup>	70 Dfd <sup>R</sup> -L	88 Berlin wild, DDT-
50 sc <sup>S1</sup> B InS wa sc <sup>8</sup>	71 ru h st Dfd p <sup>p</sup> ss e <sup>s</sup>	resistant 1
51 X-pl <sup>e</sup> (sc ec ct v g f)	72 ri	89 Berlin wild, DDT-
	73 ss <sup>a</sup>	resistant 2
<u>Chromosome 2</u>	74 ss <sup>a</sup> -F	
52 j	<u>Chromosome 4</u>	
53 bw	75 ey <sup>2</sup>	
54 bwPP	76 ci ey <sup>R</sup>	
55 b cn vg	<u>Multichromosomal</u>	
56 L <sup>2</sup> /Cy	77 Bld w <sup>a</sup> /w; Cy	
57 lgl cn bw/Cy cn bw	78 w; vg	
58 S Sp ab <sup>2</sup> ltd/NS px sp		
59 5-pl (b pr vg a sp)		

Berlin-Dahlem: Institut für Genetik der Freien Universität Berlin

<u>Wild Stocks</u>	14 w <sup>ch</sup> wy	27 ri
1 normal (Berlin wild)	15 w sn <sup>3</sup>	28 jv se
<u>Chromosome 1 (X)</u>	16 wy	<u>Chromosome 4</u>
2 B	17 y cv v f	29 ci/ey <sup>R</sup>
3 cv	18 y w	30 ey <sup>2</sup>
4 f	19 <u>+/ClB</u>	<u>Multichromosomal</u>
5 m	<u>Chromosome 2</u>	31 cn; ss
6 sc ec ct	20 b cn vg	32 e; vg
7 sc ec cv ct <sup>6</sup> v s <sup>2</sup> f	21 bw	33 y <sup>S1</sup> sc <sup>8</sup> InS y <sup>3P</sup> ; al <sup>2</sup>
car bb <sup>1</sup> / <u>ClB</u>	22 Cy (Panschin)	Cy lt <sup>3</sup> sp <sup>2</sup> /dp b Pm <sup>1</sup> ;
8 v	23 L <sup>2</sup> /Cy	ru h D InCxF ca/Sb
9 w	24 S sp ab <sup>2</sup> ltd/NS px sp	In(3R)
10 w <sup>bf</sup>	25 vg	<u>Virus?</u>
11 w <sup>a</sup>	<u>Chromosome 3</u>	34 e CO <sub>2</sub> -sensitive
12 w <sup>co</sup> sn <sup>2</sup>	26 e <sup>ll</sup>	(l'Heritier)
13 we		

Göttingen: Zoologisches Institut der Universität

<u>Wild Stocks</u>	5 <u>ClB/+</u>	12 sc <sup>S1</sup> B InS wa sc <sup>8</sup>	19 y cv v f
1 Berlin	6 car bb; y <sup>bb</sup>	13 svr	20 y cv v f car
2 Bovenden	7 fa <sup>n</sup>	14 w	21 y svr w sn <sup>3</sup>
3 Oregon-Dresden	8 fa <sup>no</sup>	15 w <sup>a</sup>	22 In(l)ne
	9 m	16 w <sup>m</sup>	<u>Chromosome 2</u>
<u>Chromosome 1</u>	10 sc <sup>1</sup>	17 w sn <sup>3</sup>	
4 B	11 sc <sup>1</sup> ec ct <sup>6</sup>	18 y	23 al



24 al dp	<u>Chromosome 4</u>	37 M-5/M-5; Cy/Pm; Sb/H
25 dp	31 ci <sup>D</sup> /ey <sup>D</sup>	38 a(1)48; a(2)48; a(3)48
26 j	32 ey <sup>2</sup>	39 a(2)48; H/C Sb
27 L <sup>2</sup> /Cy	<u>Multichromosomal</u>	40 Cy/Pm ds <sup>33k</sup> ; a(3)48
28 vg	33 cn; ss	41 a(1)50; Cy/Pm ds <sup>33k</sup> ; H/C Sb
<u>Chromosome 3</u>	34 Cy al <sup>2</sup> lt <sup>3</sup> L <sup>4</sup> sp <sup>2</sup> /+; C Mé Sb C/+	42 a(1)51; Cy/Pm ds <sup>33k</sup> ; H/C Sb
29 e <sup>ll</sup>	35 vg; e <sup>ll</sup>	<u>Attached-X</u>
30 ru h st p <sup>p</sup> ss e <sup>s</sup>	36 w; j; e <sup>ll</sup> ; ey <sup>2</sup>	43 y

Hamburg-Eppendorf: Universitäts-Frauenklinik, Strahlenbiologische Abteilung

<u>Wild Stocks</u>	4 sc <sup>8</sup> Y/y f x sc <sup>8</sup> Y/ X <sup>c2</sup> y v	<u>Multichromosomal</u>
1 normal (Berlin wild)		7 cn; ss
<u>Chromosome 1 (X)</u>	5 w	<u>Attached-X</u>
2 ClB/+	6 X <sup>c</sup> /ClB	8 y
3 sc <sup>Sl</sup> B InS w <sup>a</sup> sc <sup>8</sup>		

Heidelberg: Universität Heidelberg, Zoologisches Institut

<u>Wild Stocks</u>	11 X <sup>c2</sup>	<u>Chromosome 3</u>
1 Berlin-normal	12 y/+	21 e <sup>ll</sup>
2 Canton-S	13 y pn	22 Ly/D <sup>3</sup>
<u>Chromosome 1</u>	<u>Chromosome 2</u>	23 se
3 B	14 al	24 ss <sup>a</sup>
4 fa <sup>n</sup>	15 al dp	<u>Multichromosomal</u>
5 m	16 c	25 w; vg (1;2)
6 tw/B	17 j	26 sy; tet (1;3)
7 tw	18 L <sup>2</sup> /Cy	27 cn; ss (2;3)
8 w <sup>bf</sup>	19 ri	28 vg; e <sup>ll</sup> (2;3)
9 w <sup>co</sup> sn <sup>2</sup>	20 vg	
10 w <sup>m(?)</sup>		

## GREAT BRITAIN

Bayfordbury, Hertford, Herts, England: John Innes Horticultural Institution

<u>Wild Stocks</u>	13 Samarkand (inbred 215 generations)	<u>Chromosome 2</u>
1 Amherst-3		22 al dp b pr c px sp/Cy
2 Coombe Hill	<u>Chromosome 1</u>	23 b pr vg
3 Crimea	14 B	24 S Sp al <sup>2</sup> ltd/NS px sp
4 Ealing	15 B (inbred for 30 generations)	<u>Chromosome 3</u>
5 Florida-4	16 BB	25 Mc/Sb
6 Great Braxted	17 f B <sup>i</sup> B <sup>i</sup>	26 Mé ca/rucuca
7 Hampton Hill	18 sc ec cv ct v g f/ y Hw m <sup>2</sup> g <sup>4</sup>	<u>Chromosome 4</u>
8 Merton Park	19 v	27 ci ey <sup>R</sup>
9 Ockley	20 w	<u>Attached-X</u>
10 Oregon-R (inbred)	21 y w	28 f(y <sup>s</sup> ) x X Y <sup>L</sup> (y <sup>s</sup> )
11 Rothamsted		
12 Samarkand		

29 y x fu<sup>g</sup>InversionsMultichromosomal

31 ClB/sc v f car

32 Muller-5

30 ClB; Cy L<sup>4</sup>/Pm; H/SbBirmingham, England: The University, Department of GeneticsWild StocksChromosome 2

1-14 wild types

24 bw

25 Cy L/Pm in Oregon

26 Cy L/Pm in Samarkand

27 L<sup>4</sup>

28 S Sp Bl/Cy

Chromosome 3

29 cu

30 st

31 stp<sup>p</sup>Multichromosomal

32 ClB; Cy L/Pm; H/Sb

33 bw; st

34 v; bw

35 vg; stp<sup>p</sup>Chromosome 119 f B<sup>i</sup>B<sup>i</sup>20 w<sup>a</sup> v

21 w m B

22 w m

23 y v f

Edinburgh, Scotland: University of Edinburgh, Institute of Animal Genetics

Note: For economic reasons, a general stock collection is no longer being maintained, but almost half the stocks listed in DIS-26 (pp. 49-51) are being kept by various individual workers in the laboratory.

Glasgow, Scotland: The University, Department of Genetics

Note: Stock list unchanged. See DIS-25, p. 57, and DIS-26, p. 51.

Harpenden, Herts, England: Rothamsted Experimental StationWild Stocks

John Innes "Rothamsted"

Rothamsted (CO<sub>2</sub>-sensitive)

Kenya

Rothamsted x Crimea x Samarkand x Oregon,

Merton Park

in addition to the parent stocks

London, England: University College, Department of BiometryWild Stocks

Kenya (Inversion on X)

Kenya w<sup>x</sup> In(1)KenyaN<sup>8</sup>/+

Oregon

N<sup>8</sup>/dl-49 y Hw m<sup>2</sup> g<sup>4</sup>rst<sup>3</sup>Chromosome 1

sd

BB

v

bsd

v sd

Bx<sup>3</sup>w<sup>a</sup> m

ClB/sc v f car

wbl

wch wy

w<sup>co</sup> short bristlew<sup>e2</sup>w<sup>m4</sup>

y m car

y and sc rb ct m

y and w<sup>a</sup> m fy and y rst<sup>3</sup> m carChromosome 2

bw



cn	st
cn bw	ve
pk bw	ve ss <sup>a</sup>

Chromosome 3

Mc/Sb

ss

ss<sup>a</sup>Multichromosomaldp ss<sup>a</sup>

v bw

Manchester, England: The University, Department of Botany

<u>Wild Stocks</u>	<u>Chromosome 1</u>	
1 Amherst-3	15 B	32 1(2)H L <sup>2</sup> /Cy, dp <sup>2</sup> ; (w)
2 Canton-S	16 Bx <sup>3</sup>	33 pr en
3 Crimea	17 f	34 vg
4 Florida-4	18 sd	<u>Chromosome 3</u>
5 Ibadan	19 w	35 e <sup>11</sup>
6 Kaduna	20 w <sup>a</sup>	36 Gl/Payne
7 Kumba	21 w <sup>a</sup> m	37 se
8 Lima	22 w <sup>co</sup>	38 ss
9 Nana	23 y m car	39 st
10 Oregon-R	24 w m f/C1B	40 ve
11 Samarkand	25 w <sup>sat</sup>	<u>Chromosome 4</u>
<u>Inbred Stocks</u>	26 y w <sup>e</sup> ec	41 ey <sup>2</sup>
	<u>Chromosome 2</u>	
12 Lima	27 bw	<u>Multichromosomal</u>
13 Oregon-R	28 cn	
14 Samarkand	29 cn bw	42 sw b
	30 ho	43 y; bw; e; ci; ey <sup>R</sup>
	31 L <sup>5</sup>	

ISRAELJerusalem: Hebrew University

<u>Wild Stocks</u>	<u>Mutant Stocks</u>	<u>Special Stocks</u>
Berlin		
Canton-S	28 common stocks	Second-chromosome lethals extracted from wild popu- lations (150)
Qiryat 'Anavin		

ITALYMilan: Università di Milano, Istituto di Genetica

<u>Wild Stocks</u>			<u>Chromosome 2</u>
1 Crkwenika (4 Oregonized stocks)	7 S. Maria	15 sd	
2 Gaiano	8 Valdagno	16 w	23 b cn vg
3 Luino (4 Oregonized stocks)	9 Varese	17 w <sup>a</sup>	24 blt
4 Moltrasio	<u>Chromosome 1</u>	18 w <sup>bl</sup>	25 blt <sup>S</sup>
5 Oerlikon (4 Oregonized stocks)	10 B	19 w <sup>bf</sup>	26 cn
6 Oregon-R	11 Bx <sup>3</sup> (Oregonized)	20 w <sup>e</sup>	27 ll
	12 fa <sup>n</sup>	21 w <sup>i</sup>	28 so
	13 m <sup>2</sup> g <sup>4</sup>	22 y Hw	29 so <sup>2</sup> b cn
	14 N <sup>B-S</sup>		30 so <sup>C</sup>
			31 spt

Chromosome 3

32 cp  
 33 gl<sup>3</sup>  
 34 mwh  
 35 obt  
 36 ri-se ss k e<sup>s</sup> ro  
 37 rs<sup>2</sup>

Not Localized

38 tg cn (formerly  
 abab<sup>49</sup> cn)

Inversions

39 ClB/+  
 40 ClB y/y Hw m<sup>2</sup> g<sup>4</sup>  
 41 l(1)7/dl-49 y Hw m<sup>2</sup> g<sup>4</sup>

42 Cy sp/Pm  
 43 H/Sb sr In(3R)Mé  
 44 L<sup>4</sup> Cy sp/Pm; H/Sb sr  
 In(3R)Mé  
 45 ClB/+; L<sup>4</sup> Cy sp/Pm;  
 H/Sb sr In(3R)Mé

Stocks selected for tumor  
manifestation

46 tu Oregon  
 47 tu w  
 48 tu y Hw  
 49 tu so<sup>C</sup>  
 50 tu mwh  
 51 tu A1  
 52 tu A2

53 tu B1  
 54 tu B2  
 55 tu B3  
 56 tu B4  
 57 tu C1  
 58 tu C2  
 59 tu C3  
 60 tu C4  
 61 tu C5  
 62 tu D

Pavia: Università, Istituto di Genetica  
 (Type Culture Collection of Drosophila Species)

Wild Stocks

1 Ankara  
 2 Belluno  
 3 Canton-S  
 4 Chieti  
 5 Crkvenica  
 6 Jaslo  
 7 Oregon-R  
 8 Suna

27 we  
 28 wi  
 29 w<sup>m</sup>-4  
 30 w<sup>m</sup>-4000  
 31 w<sup>m</sup>-6000  
 32 wt  
 33 y/+  
 34 y w<sup>a</sup> cv v f  
 35 y w sn

54 tt wo  
 55 ve h th

Chromosome 4

56 ey<sup>2</sup>  
 57 sv

Chromosome Y

58 f. Y<sup>S</sup>/sc Y<sup>L</sup> and  
 y w f/sc Y<sup>L</sup>

Inbred Stocks

9 Oregon (326 gen.)  
 10 Samarkand (215 gen.)

Chromosome 2

36 b cn vg  
 37 b pr e px sp  
 38 Cy/L2  
 39 oo  
 40 vi

MultichromosomalChromosome 1

11 B  
 12 ClB/+  
 13 Df(1)N8/y Hw m<sup>2</sup> g<sup>4</sup>,  
 dl-49  
 14 lz/ClB  
 15 sc ct v f car/ClB  
 16 sc<sup>S1</sup> B InS w sc<sup>8</sup>  
 17 sc<sup>S1</sup> B InS w<sup>a</sup> sc<sup>8</sup>  
 18 sc<sup>S1</sup> InS w<sup>a</sup> ct sc<sup>8</sup>  
 19 t  
 20 v<sup>m</sup>  
 21 w  
 22 w<sup>a</sup>  
 23 w B  
 24 w<sup>Berlin</sup>  
 25 w<sup>of</sup>  
 26 w<sup>co</sup> sn

Chromosome 3

41 app  
 42 cd  
 43 cd<sup>45j</sup>  
 44 D Sb/e CL-CR  
 45 Dfd/Cx D  
 46 Dl<sup>7</sup>/In(3R)Mé Sb sr  
 47 fj-s  
 48 Gl Sb/LVM  
 49 ri-s se ss k e<sup>s</sup> ro  
 50 rs<sup>2</sup>  
 51 ss  
 52 ss<sup>a-44</sup> a  
 53 st

59 al L<sup>4</sup> Cy sp/Pm; H/Sb  
 sr In(3R)Mé  
 60 bw; e<sup>4</sup> wo ro  
 61 cn; ss  
 62 ell; st ss  
 63 px<sup>43j</sup> oo; ru jv se  
 st ca

JAPANAnjo: Nagoya University, Faculty of AgricultureWild Stocks

- 1 Anjo-Aichi
- 2 Canton Special
- 3 Hachijojima
- 4 Hikosan-Kyūshū
- 5 Hiroshima
- 6 Hita-Kyūshū
- 7 Omogo-Shikoku
- 8 Oregon
- 9 Shioya-Hokkaido
- 10 Takagichō-Tokyo
- 11 Tokyo
- 12 Yonekawa-Yamaguchi

Chromosome 1

- 13 Bx
- 14 ec ct<sup>6</sup> g<sup>2</sup> bb<sup>1</sup>/C1B
- 15 fu<sup>g</sup>/y v f car
- 16 m
- 17 sc<sup>S1</sup> B InS w<sup>a</sup> sc<sup>8</sup> (Muller-5)
- 18 w<sup>50j</sup>
- 19 w B
- 20 y<sup>52l</sup>
- 21 y w f
- 22 y w f/y C1B

Chromosome 2

- 23 al dp b pr c px sp/Cy pr
- 24 b
- 25 bw
- 26 cn
- 27 Cy/bw (M)
- 28 Cy/bw (T)
- 29 Cy bw/bw
- 30 Cy bw/1(2)50c

- 31 Cy/1(2)50c
- 32 Cy/Pm
- 33 dp<sup>x</sup>
- 34 dp<sup>v</sup> b
- 35 L<sup>2</sup>
- 36 M(2)173/Cy al<sup>2</sup> lt<sup>3</sup> L<sup>4</sup> sp<sup>2</sup>
- 37 Pm
- 38 Pm/1(2)50c
- 39 S Sp ab<sup>2</sup> ltd/NS px sp
- 40 wg
- 41 vg<sup>Nw</sup> Hia/T(2,3)S<sup>M</sup> Cy

Chromosome 3

- 42 cu
- 43 e
- 44 H
- 45 Ly/D<sup>3</sup>
- 46 ru h th st cu sr e<sup>s</sup> ca/Mé LX
- 47 Sb
- 48 se ss ro
- 49 ve

Chromosome 4

- 50 ci ey<sup>R</sup>
- 51 gvl ey<sup>R</sup>

Multichromosomal

- 52 Cy/1(2)50c; cu
- 53 Cy/1(2)50c; Sb
- 54 Cy/1(2)50c; Sb/cu
- 55 Cy/1(2)50c; Sb cu/cu
- 56 Cy/1(2)50c; se<sup>53c</sup> cu
- 57 Pm/1(2)50c; cu
- 58 Pm; Sb
- 59 vg; se

Kyoto: Kyoto University, Zoological InstituteWild Stocks

- 1 Ashitakayama (Japan)
- 2 Kitashirakawa, Kyoto (Japan)
- 3 Mishima (Japan)
- 4 Miyazaki-1 (Japan)
- 5 Oregon-RS
- 6 Otsu (Japan)
- 7 Stephenville
- 8 Tokushima (Japan)
- 9 Yamaguchi (Japan)
- 10 Tokyo

Chromosome 1

- 11 B
- 12 B (from Berkeley)

- 13 Bx (from Berkeley)
- 14 Bx<sup>50a</sup>
- 15 cm
- 16 ec
- 17 ec ct<sup>6</sup> g<sup>2</sup> bb<sup>1</sup>/C1B
- 18 f
- 19 fa
- 20 f B<sup>1</sup>B<sup>1</sup>/y f:-
- 21 fu<sup>g</sup>/y v f car
- 22 g<sup>2</sup> ty/y
- 23 rst<sup>2</sup>/dl-49 y Hw m<sup>2</sup> g<sup>4</sup>
- 24 sc<sup>S1</sup> B InS w<sup>a</sup> sc<sup>8</sup> (Muller-5)
- 25 sd mc
- 26 t<sup>3</sup>
- 27 v



28 w  
29 w f  
30 w mt  
31 w<sup>a</sup>  
32 w<sup>e</sup>  
33 w<sup>h</sup>  
34 w<sup>t</sup> fw  
35 y  
36 y ac v  
37 y w  
38 y w f  
39 y<sup>2</sup> v f car

Chromosome 2

40 al dp b pr c px sp/Cy  
41 al dp b Bl c px sp/Cy  
42 al dp b pr c px sp/Cy pr (all)  
43 b gp  
44 bv  
45 bw  
46 bw/Cy  
47 bw/vg  
48 cl  
49 cn  
50 cn wt  
51 dp  
52 dp<sup>x</sup>  
53 ft  
54 L<sup>2</sup>  
55 L<sup>4</sup>

56 lgl cn bw/Cy cn bw  
57 pr en  
58 px  
59 S/Cy E-S  
60 stw

61 vg  
62 vg<sup>no</sup>  
63 vg<sup>ng</sup>  
64 vg<sup>Nw</sup> Hia/T(2;3)S<sup>M</sup> Cy  
65 wt

Chromosome 3

66 bar-3  
67 C e  
68 ca  
69 cu kar  
70 ell  
71 gl-1  
72 glv  
73 H<sup>2</sup>/Xa  
74 jv  
75 ro  
76 ru  
77 ru h th st cu sr e<sup>s</sup> ca/Mé Lx  
78 se  
79 sed

80 st  
81 ss<sup>a</sup>  
82 ve  
83 ve h th  
84 wo

Chromosome 4

85 ey  
86 sv<sup>n</sup>

Multichromosomal

87 b; se  
88 b; tx  
89 bw; e  
90 cn; bw  
91 cn; gvl  
92 cn; ca; gvl  
93 Cy/Pm; ds<sup>33k</sup>; H/In(3R)Mé sb sr  
94 Cy/Pm; st C<sup>3</sup> G  
95 dp<sup>v</sup>; ro<sup>3</sup>  
96 pr; ss  
97 S/Cy; D/cx  
98 v; bw  
99 vg; ell  
100 sca; ss<sup>a</sup>  
101 w<sup>e</sup> f; sr  
102 w; ell  
103 wt; ss  
104 y; bw; e; ci ey<sup>R</sup>

Translocation

105 T(2;4)A 29/Cy

Special Stocks

106 w258-11 (Df w)	y w258-11/dl-49, y Hw m <sup>2</sup>
107 w258-45 (Df w)	y w258-45/dl-49, y Hw m <sup>2</sup> g <sup>4</sup>
108 N264-8	N264-8/dl-49, y Hw m <sup>2</sup> g <sup>4</sup>
109 N264-72 (Df)	y N264-72/dl-49, y Hw m <sup>2</sup> g <sup>4</sup>
110 N264-112 (In)	y N264-112/dl-49, Hw m <sup>2</sup> g <sup>4</sup>

Misima, Sizuoka-Ken: National Institute of GeneticsWild Stocks

001 Canton-Special  
002 Oregon-2  
003 Tokyo  
004 Yata (Misima)

Chromosome 1

101 B  
102 B bb  
103 BB  
104 ec ct<sup>6</sup> g<sup>2</sup> bb<sup>1</sup>/C1B  
105 m  
106 oc ptg<sup>3</sup>/C1B  
107 rst<sup>-</sup>(=rst<sup>2</sup>)/y Hw In49 m g  
108 sc<sup>8</sup> w<sup>a</sup> B  
109 sc<sup>8</sup>.Y/lJ1 In49 B<sup>M1</sup> ♂ & lJ1 sc<sup>J1</sup>  
In49 B<sup>M1</sup>/y ac pn w rb cm ct<sup>6</sup>  
cn<sup>3</sup> oc ptg ras<sup>2</sup> v dy g<sup>2</sup> f od  
car sw ♀  
110 sc<sup>S1</sup> B In49 lz<sup>s</sup>/w sn<sup>5s</sup> bb  
111 sc<sup>S1</sup> B In49 v & y f:=  
112 sc<sup>V1</sup>.Y<sup>s</sup>/y v f bb.Y<sup>1</sup> & y f:=  
113 TX3 s<sup>2</sup> sc<sup>S1</sup> B InS w<sup>a</sup> sc<sup>8</sup> bb/w  
sn<sup>5</sup> bb  
114 v  
115 w<sup>a</sup>  
116 w B  
117 w258-11 (Df w) y w258-11/dl-49, y Hw m<sup>2</sup>  
118 w258-14 (Df w) y w258-14/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
119 w258-45 (Df w) y w258-45/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>  
120 y ac v  
121 y ac sc pn w rb cm ct<sup>6</sup> ras<sup>2</sup> v  
g<sup>2</sup> f car & y f:=; sc<sup>19i</sup>/Cy,  
InL  
122 y ac sc pn w rb cm ct<sup>6</sup> sn<sup>3</sup>  
ras<sup>2</sup> v dy g f Tu car/y sc<sup>S1</sup>  
g In49 m sc<sup>8</sup>  
123 y ac pn w rb wy<sup>2</sup> g<sup>2</sup> & yf:=;  
sc<sup>19i</sup>/Cy  
124 y rb cm ras<sup>2</sup> g<sup>2</sup> & y f:=;  
sc<sup>19i</sup>/Cy  
125 y sc<sup>S1</sup> B f In49 v/oc ptg  
126 y sc<sup>S1</sup> f w sc<sup>8</sup>/y Hw In49 m g  
127 y sc<sup>S1</sup> B In49 sn<sup>x2</sup> sc<sup>8</sup>/oc ptg  
128 y sc<sup>S1</sup> In49 sc<sup>8</sup>  
129 y sc<sup>S1</sup> In49 ct<sup>1</sup> v sc<sup>8</sup>/y v car  
bb<sup>-</sup>

Chromosome 2

201 al dp b pr c px sp/Cy pr (all)  
202 ap<sup>4</sup>/Cy  
203 al b pr cn vg a sp/Cy cn<sup>2</sup> L<sup>4</sup>  
sp<sup>2</sup>  
204 b pr Bl tk/S<sup>2</sup> Cy cn<sup>2</sup> L<sup>4</sup> sp<sup>2</sup>  
205 bw

206 bw/Cy  
207 cn  
208 dp  
209 dp b cn c sp/al<sup>2</sup> Cy Bl cn<sup>2</sup> L<sup>4</sup> sp<sup>2</sup>  
210 dp<sup>x</sup>  
211 Hx  
212 M(2)173/Cy al<sup>2</sup> lt<sup>3</sup> L<sup>4</sup> sp<sup>2</sup>  
213 pr en  
214 S/Cy E-S  
215 S Sp ab<sup>2</sup> ltd/NS, px sp  
216 ta cn bw/al<sup>2</sup> Cy Bl cn<sup>2</sup> L<sup>4</sup> sp<sup>2</sup>  
(iso 2)  
217 v<sup>gni</sup>  
218 v<sup>ng</sup>  
219 v<sup>no</sup>  
220 v<sup>hw</sup>/S<sup>M</sup> Cy

Chromosome 3

301 Bd<sup>491</sup>/Sb  
302 Bxl/Payne, Dfd ca  
303 cu  
304 ell  
305 Gl Sb/LVM  
306 H<sup>2</sup>/Xa  
307 M(3)w/In(3R)C, e 1(3)e  
308 Me, InL In(3R)C e 1(3)e/ru h D Sb  
InscXF

309 p<sup>p</sup> bx sr e<sup>s</sup>  
310 ru h th st cu sr e<sup>s</sup> Pr ca/T(2;3)Mé  
311 (sbd<sup>2</sup>) bx<sup>3</sup> Bxl/Xa  
312 se  
313 st

Chromosome 4

401 Cat/gvl ey<sup>R</sup>  
402 ey  
403 gvl ey<sup>R</sup>

Multichromosomal

501 bw sp; ru h D<sup>3</sup> ri InC e 1(3)e/Mé,  
InS ri Sh<sup>1</sup>  
502 g<sup>2</sup>/Cy; y  
503 v; bw  
504 vg/Cy; M(3)w/In(3), 1(3)  
505 X<sup>c</sup>; y/f B  
506 Xc<sup>2</sup> v & y.= (bw; e; ey)  
507 Y bb<sup>-</sup>/y v; bw<sup>VA</sup>/Bl L<sup>2</sup>  
508 Y<sup>lc</sup>/X.Y<sup>s</sup>

Unanalyzed

601 Virus? CO<sub>2</sub>-sensitive e (L'Héritier)

Osaka: Osaka University, Faculty of Medicine, Department of Genetics

<u>Wild Stocks</u>	217 M(2)S7/Cy, al <sup>2</sup> lt <sup>3</sup> l <sup>4</sup> sp <sup>2</sup>	503 v; px (1;2)
1 Canton-S	218 pk cn	504 w; px (1;2)
2 Oregon	219 px	505 f; cd (1;3)
3 Oregon-R-S	220 S Sp ab <sup>2</sup> ltd/Ns, px sp	506 al dp b Bl c px sp/Cy; D(3)X (2;3)
4 Stephenville	221 sca	507 b; se (2;3)
5-24 Wild types in Japan	222 stw <sup>3</sup>	508 b; tx (2;3)
<u>Chromosome 1</u>	223 vg	509 bw; e (2;3)
101 B	224 vg bw	510 bw sp; ri e (2;3)
102 B bb	225 wt	511 bw; ss (2;3)
103 Bx <sup>50a</sup>	<u>Chromosome 3</u>	512 bw; st (2;3)
104 car	301 bar-3	513 c; e (2;3)
105 cm	302 bv	514 cn; ca (2;3)
106 ec ct g <sup>2</sup> bb <sup>1</sup> /C1B	303 bx <sup>34e</sup>	515 cn; bar-3 (2;3)
107 f	304 ca	516 Cy/Pm; st C <sub>3</sub> G (2;3)
108 f BB/In(1)AM	305 cu kar	517 Cy/Pm ds <sup>33k</sup> ; H/In(3R)Me, Sb sr (2;3)
109 f B <sup>i</sup> B <sup>i</sup> /y	306 ell	518 pr; ss (2;3)
110 f B <sup>i</sup> B <sup>i</sup> /y f:=	307 gl-1	519 sca; ss <sup>a</sup> (2;3)
111 g <sup>2</sup>	308 Gl Sb/LVM	520 stw <sup>3</sup> ; gl-1 (2;3)
112 m	309 H <sup>2</sup> /Xa	521 vg; ell (2;3)
113 Muller-5	310 jv	522 vg; se (2;3)
114 rb	311 Ly/D <sup>3</sup>	523 wt; se (2;3)
115 t	312 p <sup>p</sup> bx sr e <sup>s</sup>	524 wt; ss (2;3)
116 t <sup>3</sup>	313 ro	525 wt; ss <sup>a</sup> (2;3)
117 v	314 ru h (cu) cd ca	526 cn; gvl (2;4)
118 w	315 se	527 bar-3; gvl (3;4)
119 w <sup>a</sup>	316 ss	528 ss <sup>a</sup> ; sv <sup>n</sup> (3;4)
120 w <sup>e</sup>	317 ss <sup>a</sup>	529 bw; e; sv <sup>n</sup> (2;3;4)
121 w <sup>h</sup>	318 st	530 cn; bar-3; gvl (2;3;4)
122 w B <sup>1</sup>	319 tx <sup>52j</sup>	531 cn; bar-3; sv <sup>n</sup> (2;3;4)
123 w m	320 ve	532 cn; ca; gvl (2;3;4)
124 w m B <sup>1</sup>	321 ve h th	533 cn; ca; sv <sup>n</sup> (2;3;4)
125 w <sup>t</sup> fw	322 wo	534 cn; ss; gvl (2;3;4)
126 y ac v	<u>Chromosome 4</u>	535 stw <sup>3</sup> ; gl-1; gvl (2;3;4)
127 y m f	401 gvl	536 y; bw; e; ci ey <sup>R</sup> (1;2;3;4)
128 y <sup>2</sup> v f car	402 sv <sup>n</sup>	
129 y w f	<u>Multichromosomal</u>	
<u>Chromosome 2</u>	501 Muller-5; vg <sup>no</sup> (1;2)	
201 al b c sp <sup>2</sup>	502 v; bw (1;2)	
202 b gp	<u>Special Stocks</u>	
203 bw	601 Fukuoka-R (DDT-resistant)	
204 cn	602 Hikone-R (Resistant to BHC, DDT, parathion, and nicotine)	
205 cn bw	603 Kochi-R (parathion-resistant)	
206 cn vg bw		
207 cn sca		
208 cn wt		
209 cn wt bw		
210 cl		
211 dke c		
212 dp		
213 dp b pr c px sp		
214 ft		
215 L <sup>2</sup>		
216 L <sup>4</sup>		



Sapporo: Hokkaido University, Faculty of Science, Institute of Zoology

<u>Wild Stocks</u>	<u>Mutants</u>	
1 Oregon-R	6 B	12 vg se
2 Otaru	7 m	13 se ss ro
3 Sapporo	8 y w f	14 bt
4 Shioya	9 bw	<u>Inversion</u>
5 Utsunomiya	10 bw/Cy	15 sc <sup>S1</sup> B InS w <sup>a</sup> sc <sup>8</sup>
	11 vg	(Muller-5)

Tokyo: Tokyo Metropolitan University, Department of Biology

<u>Wild Stocks</u>	
1 Canton-Special	33 sc <sup>V1</sup> .Y <sup>S</sup> /y v f bb.Y <sup>1</sup> & y f:=
2 Hachijōjima	34 ("tester 1") y ac pn w rb wy <sup>2</sup> g <sup>2</sup> & y f:=; sc <sup>191</sup> /Cy
3 Hikosan-Kyūshū	35 ("tester 2") y <sup>2</sup> w <sup>a</sup> cm wy <sup>2</sup> g <sup>2</sup> car & y f:=; sc <sup>191</sup> /Cy
4 Hiroshima	36 ("tester 3") y rb cm ras <sup>2</sup> g <sup>2</sup> & y f:=; sc <sup>191</sup> /Cy
5 Hita-Kyūshū	37 TX <sup>3</sup> ♂ s <sup>2</sup> sc <sup>S1</sup> B InS w <sup>a</sup> sc <sup>8</sup> /w sn <sup>5</sup> bb
6 Omogō-Shikoku	38 w
7 Oregon	39 w B
8 Senzoku-Tokyo	40 w f
9 Shioya-Hokkaidō	41 w m
10 Tokyo	42 w <sup>a</sup>
11 Yonekawa-Yamaguchi	43 w <sup>e</sup>
<u>Chromosome 1</u>	44 Xc <sup>2</sup> v & y.= (bw; e; ey)
12 B	45 y
13 B (Calif.U.)	46 y sc <sup>S1</sup> B f In49 v & y f:=
14 BB	47 y sc <sup>S1</sup> B In49 v/oc ptg
15 bb y <sup>bb</sup>	48 y sc <sup>4</sup> f w sc <sup>8</sup> /y Hw In49 m <sup>2</sup> g <sup>4</sup>
16 Bx	49 y sc <sup>S1</sup> B In49 sn <sup>x2</sup> sc <sup>8</sup> /oc ptg
17 Bx <sup>50a</sup>	50 y sc <sup>S1</sup> In49 sc <sup>8</sup>
18 ec ct <sup>6</sup> g <sup>2</sup> bb <sup>1</sup> /C1B	51 y sc <sup>S1</sup> In49 ct <sup>1</sup> v sc <sup>8</sup> /y v car bb-
19 f BiBi/y	52 y w
20 fu <sup>g</sup> /y v f car	53 y w f
21 fw <sup>501</sup>	<u>Chromosome 2</u>
22 ("jynd") Y <sup>lc</sup> /y sn <sup>5</sup> oc v. Y <sup>S</sup> ♂ & Y <sup>lc</sup> /sc <sup>J1</sup> pn w rb cm ct <sup>6</sup> oc ras <sup>2</sup> v dy g <sup>2</sup> f od car sw/y sc <sup>S1</sup> B In49 sn <sup>x2</sup> sc <sup>8</sup> ♀	54 ("albasp") al b pr cn vg a sp/Cy cn <sup>2</sup> L <sup>4</sup> sp <sup>2</sup>
23 lz <sup>3</sup> /y f:=	55 ("all") al dp b pr c px sp/Cy pr
24 m	56 al dp b pr c px sp/Cy
25 ("maxy") sc <sup>8</sup> Y/l <sup>J1</sup> sc <sup>J1</sup> In49 B <sup>M1</sup> ♂ l <sup>J1</sup> In49 B <sup>M1</sup> /y ac pn w rb cm ct <sup>6</sup> sn <sup>3</sup> oc ptg ras <sup>2</sup> v dy g <sup>2</sup> f od car sw ♀	57 ap <sup>4</sup> /Cy
26 oc ptg <sup>3</sup> /C1B	58 b pr Bl tk/S <sup>2</sup> Cy cn <sup>2</sup> L <sup>4</sup> sp <sup>2</sup>
27 ("plex-Tu") y ac sc pn w rb cm ct <sup>6</sup> sn <sup>3</sup> ras <sup>2</sup> v dy g f Tu car/y sc <sup>S1</sup> g In49 m sc <sup>8</sup>	59 bw
28 rst <sup>2</sup> /dl-49, y Hw m <sup>2</sup> g <sup>4</sup>	60 bw/Cy
29 sc <sup>S1</sup> B In49 lz <sup>s</sup> /w sn <sup>5s</sup> bb	61 cn
30 sc <sup>S1</sup> In49 v & y f:=	62 cn bw
31 ("Muller-5") sc <sup>S1</sup> B InS w <sup>a</sup> sc <sup>8</sup>	63 conditioned lethal/Cy (Yoshida)
32 ("sz") Y <sup>lc</sup> /X.Y <sup>S</sup>	64 Cy
	65 dp <sup>x</sup>
	66 dp b cn sp/al <sup>2</sup> Cy Bl cn <sup>2</sup> L <sup>4</sup> sp <sup>2</sup>
	67 dp bw
	68 Hx (Hexaptera)
	69 L <sup>2</sup>
	70 L <sup>52c</sup> v <sup>gno</sup>
	71 l(2) <sup>50</sup> /Cy (Nozawa)

72 1(2)<sup>50</sup>/Cy (select. 16 gener.)73 M(2)173/Cy al<sup>2</sup> lt<sup>3</sup> L<sup>4</sup> sp<sup>2</sup>

74 pr en

75 S Sp ab<sup>2</sup> ltd/NS, px sp

76 Str 3104

77 ta cn bw/al<sup>2</sup> Cy Bl cn<sup>2</sup> L<sup>4</sup> sp<sup>2</sup>

78 vg

79 vg<sup>no</sup>80 vg<sup>ni</sup>81 vg<sup>np</sup>82 vg<sup>ng</sup>

83 vg bw

84 vg<sup>Nw</sup> Hia/T(2;3) S<sup>M</sup> CyChromosome 4

110 bt

111 Cat/gvl ey<sup>R</sup>112 ci ey<sup>R</sup>

113 ey

114 Scn/ey<sup>D</sup>115 sv<sup>n</sup>Chromosome Undetermined

116 crossvein-broken

117 gap (w)

118 (ro)

Chromosome 385 Bd<sup>491</sup>/Sb

86 Bxl/Payne, Dfd ca

87 cu

88 D1<sup>3</sup>/In(3R)C, e89 D1<sup>491</sup>/1(3)

90 ell

91 ell (iso C-S)

92 G1<sup>53bl7</sup> H/LVM

93 G1 Sb/LVM

94 H<sup>2</sup>/Xa95 H<sup>2</sup> ell/Xa96 H<sup>51c</sup>/Sb97 Ly/D<sup>3</sup>

98 M(3)w/In(3R)C, e 1(3) e

99 Me, InL InRC e 13e ru h D Sb

InsCXF

100 p<sup>D</sup> bx sr e<sup>S</sup>101 ru h th st cu sr e<sup>S</sup> Pr ca/T(2;3)Mé102 ru h th st cu sr e<sup>S</sup> ca/Mé LX

103 Sb/1(3) (domin. vg)

104 (sbd<sup>2</sup>) bx<sup>3</sup> Bxl/Xa

105 se ss ro

106 st

107 ve

108 N-X/In(3R), 1(3)

109 N-X/Xa

Multichromosomal119 bw sp; ru h D<sup>3</sup> ri InC e 13e/Mé,  
Ins ri Sb1

120 v; bw

121 v; cn bw

122 y w; e

123 vg; se

124 w<sup>50k</sup>; N-X/In(3R), 1(3)125 Cy/Pm, ds<sup>33k</sup> (dp,b); H/Sb C

126 S/Cy; D/Cx(2;3)

127 vg/Cy; M(3)w/In(3), 1(3)

128 vg<sup>no</sup>; M(3)w/In(3), 1(3)

129 Muller-5; Cy/Pm; H/C Sb

130 Muller-5; vg<sup>no</sup>; H/C Sb

131 vg; Sb H/1(3)

132 vg; H/C Sb

Translocations

133 T(2;4)d/Cy, pr

134 T(2;4)A29/Cy

Special Stocks

135 w258-11 (Df w)

136 w258-14 (Df w)

137 w258-42 (Df w)

138 w258-45 (Df w)

139 N264-72 (Df)

140 N264-88 (Df)

141 N264-112 (In)

142 ct 268-2b

143 N264-8

144 N<sup>491</sup>y w258-11/dl-49, y Hw m<sup>2</sup>y w258-14/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>y w258-42/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>y w258-45/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>y N264-72/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>N264-88/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>y N/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>ct 268-2/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>N264-8/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>N<sup>491</sup>/dl-49, y Hw m<sup>2</sup> g<sup>4</sup>Unanalyzed

145 intensifier of Bd

Virus146 CO<sub>2</sub>-sensitive e (L'Héritier)

KOREAKwang-Ju: Chun-Nam University, Pre-medical College, Laboratory of Biology

<u>Wild Stock</u>	<u>Chromosome 2</u>	
1 Kwang-Ju (Korea)	18 bj	36 H/In(3R)hp, hp
	19 c	37 ro
<u>Chromosome 1</u>	20 cn	38 ru
2 B	21 d b/Cy, pr	39 se
3 BB	22 ex	40 st sr e <sup>S</sup> ro ca; tu <sup>36a</sup>
4 Bx	23 fr/Cy, dp <sup>2</sup>	<u>Chromosome 4</u>
5 f	24 j	41 bt
6 g <sup>2</sup> pl/C1B	25 L	42 ey
7 lz/C1B	26 Pfd+Ins(2L+2R)Cy, S <sup>2</sup>	43 gvl
8 m	27 pr en	<u>Multichromosomal</u>
9 s	28 px	44 Cy/Pm, ds <sup>33k</sup> , H/C, Sb
10 svr wa	29 S/Cy, E-S	<u>Attached-X</u>
11 t	30 vg	45 y/g <sup>2</sup> ty
12 v	<u>Chromosome 3</u>	<u>Inversion</u>
13 w	31 ca	46 sc <sup>S1</sup> B InS wa sc <sup>8</sup>
14 wa	32 D/G1	(Muller-5)
15 we	33 D1 H e <sup>S</sup> cd/In(3R)spr,	<u>Translocation</u>
16 wi vb	spr	47 T(1;4)Al3/y w
17 y	34 ell	
	35 h	

NETHERLANDSUtrecht: Genetisch Instituut der RijksuniversiteitNote: Stock list unchanged. See DIS-26, p. 56.NORWAYOslo: University, Institute of Genetics

<u>Wild Stocks</u>		
1 Florida	15 gt w/gt bb <sup>11</sup>	31 y 1(1)7/sc <sup>S1</sup> B InS
2 Oregon	16 lz <sup>5ld10</sup> /y	wa sc <sup>8</sup>
3 Oslo	17 na/sc <sup>8</sup> dl-49 y B	32 y pn
	wa lz <sup>s</sup>	33 y sc we ec rb
	18 od Bxr <sup>49k</sup>	34 y w
<u>Chromosome 1</u>	19 rst <sup>2</sup> /dl-49, y Hw m <sup>2</sup> g <sup>4</sup>	<u>Chromosome 2</u>
4 Ax	20 sc cv v f	35 a px or
5 B	21 sc w <sup>Bwx</sup>	36 al <sup>2</sup> Cy, InL, lt <sup>3</sup> /b pr B1
6 br ec rb	22 sn <sup>2</sup> B/y	lt <sup>3</sup> InCy R L <sup>4</sup> sp <sup>2</sup>
7 Bx <sup>3</sup>	23 sw	37 al dp b pr c px sp
8 car px-like	24 w	38 b j pr cn
9 ec ct <sup>6</sup> v g <sup>3</sup> /C1B	25 w m f	39 bw
10 f	26 wa	40 bw cn
11 fa	27 w <sup>Bwx</sup>	41 dp <sup>51f26</sup>
12 fu <sup>g</sup> /y v f car	28 w <sup>ch</sup> wy	42 fj px sp
13 g <sup>37c</sup>	29 y	43 j <sup>49k</sup>
14 g <sup>37f</sup> car	30 y ec ct v f	44 j <sup>50e5</sup>



45 L <sup>2</sup> /Cy	61 gl <sup>3</sup>	<u>Chromosome 4</u>
46 L <sup>5</sup>	62 Gl Sb/LVM	78 ar ey <sup>D</sup>
47 M(2)l <sup>2</sup> /Cy, L <sup>4</sup> sp <sup>2</sup>	63 jv Hn <sup>r</sup> h	79 ci ey <sup>R</sup>
48 M(2)z/Cy L	64 jv se	80 ey <sup>2</sup>
49 M(2)50j7/Cy, al <sup>2</sup>	65 Ly/D <sup>3</sup>	81 sv <sup>2</sup>
lt <sup>3</sup> L <sup>4</sup> sp <sup>2</sup>	66 M(3)bb/LVM	<u>Multichromosomal</u>
50 Pm/Cy, al <sup>2</sup> lt <sup>3</sup>	67 M(3)w/In(3R)C,	82 y; bw; e; ci ey <sup>R</sup>
L <sup>4</sup> sp <sup>2</sup>	e l(3)e	83 bw; st
51 pr <sup>41</sup>	68 ma fl	84 Cy/Pm; H/C Sb
52 S <sup>57b</sup> /Cy	69 p <sup>42a</sup>	85 tu(2)49k; ma <sup>49d</sup>
53 stw <sup>D</sup>	70 Pr/In(3R)C, e	<u>Deficiencies</u>
54 vg	71 ra	86 Df(1)N <sup>8</sup> /dl-49, y Hw
<u>Chromosome 3</u>	72 ri	m <sup>2</sup> g <sup>4</sup>
55 cp	73 se	87 Df(2)Px <sup>2</sup> , bw sp/Cy L
56 cv-c	74 se ss k e <sup>s</sup> ro	<u>Translocation</u>
57 D <sup>3</sup> H/Payne	75 st	88 T(2;3)Cy
58 Dl <sup>K</sup> /Sb	76 st e <sup>2</sup>	
59 dv/Mé	77 ve	
60 e <sup>4</sup> wo ro		

SOUTH AFRICA

Johannesburg: University of the Witwatersrand, Department of Zoology

<u>Wild Stocks</u>	29 f <sup>5</sup> m	60 wbl rb
1 Canton-S	30 f <sup>5</sup> v	61 wch
2 Cedara	31 g	62 wch rb
3 Florida	32 g <sup>2</sup>	63 wco
4 Graaff Reinet	33 g <sup>3</sup>	64 wco rb
5 Inhaca Island	34 g <sup>3</sup> car	65 wcol
6 Johannesburg	35 m	66 we
7 Lourenco Marques	36 m f	67 we <sup>2</sup>
8 Mowbray	37 pn <sup>2</sup>	68 we <sup>3</sup>
9 Nelspruit	38 ras <sup>2</sup> dy	69 we car
10 Stellenbosch	39 ras <sup>2</sup>	70 we cm
11 West Rand	40 ras <sup>3</sup> m	71 we g <sup>3</sup>
12 Zoutpansberg	41 rb	72 we g <sup>3</sup> car
<u>Chromosome 1</u>	42 rb car	73 we rb
13 bi ct <sup>6</sup> g <sup>2</sup>	43 rb cm g <sup>3</sup>	74 we rb car
14 bo	44 rb cm car	75 wsat
15 B	45 rb cx	76 w <sup>t</sup> fw
16 car	46 rb g <sup>3</sup>	77 w <sup>w</sup>
17 car <sup>2</sup>	47 rb g <sup>3</sup> car	78 y
18 cm	48 svr w <sup>a</sup>	79 y f B
19 cm g <sup>3</sup> car	49 v	80 y g <sup>3</sup>
20 ct v	50 v <sup>36f</sup>	81 y g <sup>4</sup>
21 ct v dy g	51 v g <sup>3</sup>	82 y m
22 ct <sup>6</sup>	52 w	83 y pn
23 ec	53 w m	84 y rb
24 ec ct <sup>6</sup> v g <sup>3</sup>	54 w m f	85 y w m
25 f	55 wa	86 y we
26 f B	56 wa <sup>3</sup>	87 y we <sup>e</sup> rb
27 f B/y	57 wa <sup>4</sup>	88 y w <sup>w</sup>
28 f <sup>5</sup>	58 w <sup>a</sup> rb	89 y/+
	59 wbl	

Chromosome 2

90 albas<sup>p</sup>/Cy L<sup>4</sup> sp<sup>2</sup>  
 91 a sp<sup>2</sup>  
 92 b pr cn  
 93 b pr cn a  
 94 bw  
 95 bw<sup>2b</sup>  
 96 bw<sup>4</sup>  
 97 bw<sup>D</sup> c  
 98 c  
 99 cn  
 100 cn<sup>35k</sup>  
 101 cn vg  
 102 cl  
 103 dke c  
 104 lt std/Cy sp<sup>2</sup>  
 105 lt stw<sup>3</sup>  
 106 ltd  
 107 pd  
 108 Pm<sup>2</sup>/+  
 109 pr  
 110 tk sf<sup>2</sup> abb  
 111 vg  
 112 vg<sup>dn</sup>

Chromosome 3

113 ca  
 114 cd  
 115 cu kar  
 116 dv Mé  
 117 e

118 e<sup>S</sup> cd ro cmp ca/Xa,  
                   ca  
 119 jv Hn<sup>r</sup> h  
 120 ma fl  
 121 mah  
 122 p  
 123 p<sup>p</sup> cu  
 124 p<sup>p</sup> cu sr  
 125 p<sup>p</sup> cu sr e<sup>S</sup>  
 126 res  
 127 ry  
 128 se  
 129 sr  
 130 sr sed  
 131 st<sup>sp</sup>  
 132 th st  
 133 th st p<sup>p</sup>  
 134 th st pb p<sup>p</sup>/Cx, D

Chromosome 4

135 ci ey<sup>R</sup>

Multichromosomal

136 bw; ci ey<sup>R</sup>  
 137 bw; e  
 138 bw; st  
 139 g<sup>3</sup>; bw  
 140 g<sup>3</sup>; st  
 141 g<sup>3</sup>; st p<sup>p</sup>  
 142 ras<sup>2</sup>; st  
 143 rb; bw  
 144 rb; st

145 vg; se  
 146 we; se  
 147 we rb; se  
 148 w<sup>w</sup>; cd  
 149 y; bw; e; ci ey<sup>R</sup>

Deficiencies

150 Df(1)N<sup>8</sup>/y Hw dl-49  
                   m<sup>2</sup> g<sup>4</sup>

Inversions

151 In(1)A99b  
 152 In(1)dl-49, y fa<sup>n</sup>  
 153 In(1)rst<sup>3</sup>, y rst<sup>3</sup>  
                   car bb  
 154 In(1)rst<sup>3</sup>, y rst<sup>3</sup>  
                   g<sup>3</sup> car<sup>g</sup>  
 155 In(1)sc<sup>g</sup>, w<sup>a</sup>  
 156 In(1)w<sup>m4</sup>  
 157 In(1)w<sup>m4</sup>, g<sup>3</sup>  
 158 In(1)w<sup>m4</sup>; bw  
 159 In(1)w<sup>m4</sup>; st  
 160 In(3L)pers

Translocations

161 T(1;4)w<sup>m5</sup>  
 162 T(2;3)S<sup>M</sup> cy/vg<sup>nw</sup>

SWEDENStockholm: University of Stockholm, Institute of GeneticsWild Stocks

1 Algeria  
 2 Canton-S  
 3 Florida  
 4 Karsnäs  
 5 Oregon  
 6 Stäket  
 7 Tunnelgatan  
 8 Örebro  
 9 Skafth

Chromosome 1

10 B  
 11 Df B 263-5 K/In(1)AM  
 12 B<sup>n</sup> In ♂ & y f:= ♀  
 13 Bx<sup>2</sup>  
 14 car  
 15 cm ct<sup>6</sup> sn<sup>3</sup> ♂ & y f:=  
                   ♀

16 cv  
 17 cv sn  
 18 cv v B ♂ & y.= ♀  
 19 ct<sup>6</sup>  
 20 ct<sup>n</sup>  
 21 ec ct v f  
 22 f  
 23 f B  
 24 f BB/In(1)AM  
 25 fa  
 26 g<sup>2</sup> B  
 27 lw 29a H<sub>2</sub>/y Hw g  
                   In49 m  
 28 lw 47b H<sub>1</sub>/y sc<sup>8</sup> f  
                   In49V w<sup>a</sup>  
 29 lz ♂ & y.= ♀  
 30 m  
 31 m f  
 32 Df(1)N<sup>8</sup>/+

33 od car  
 34 pn  
 35 rb  
 36 sc  
 37 sc Sc v f car/scS<sup>1</sup>  
                   B InS  
 38 sc cv  
 39 sc cv v f  
 40 sc cy v car  
 41 sc t<sup>2</sup> v f Tu car ♂ &  
                   y f:= ♀  
 42 sc t<sup>2</sup> v f ♂ & y f:= ♀  
 43 sc v f car/ClB  
 44 scS<sup>1</sup> B InS w<sup>a</sup> sc<sup>8</sup>  
                   (Muller-5)  
 45 sn<sup>3</sup>  
 46 v  
 47 w  
 48 w ct<sup>6</sup>

49 w cv	83 y w <sup>a</sup>	113 ru h st p <sup>p</sup> ss e <sup>s</sup>
50 w cv sn <sup>3</sup>	84 y w <sup>a</sup> sn <sup>3</sup> m f car	114 ss
51 w sn <sup>3</sup>	85 y w <sup>e</sup> ec	115 st
52 w f	86 y ec ct <sup>6</sup> v f	116 st/In(3R)P
53 w <sup>a</sup>	87 y v g <sup>2</sup> f	117 st ss ell
54 w <sup>b</sup> f2	88 y B	118 se ss k e <sup>s</sup> ro
55 w <sup>b</sup> l		119 ve h th
56 w <sup>c</sup> h2	<u>Altered Y's</u>	120 ve h th st cu ss e <sup>s</sup> ca
57 w <sup>c</sup> o	89 sc <sup>8</sup> Y; y w sn	
58 w <sup>c</sup> ol	90 sc <sup>8</sup> Y; y <sup>53el2</sup> sc <sup>Sl</sup>	<u>Chromosome 4</u>
59 w <sup>e</sup>	B InS w <sup>a</sup> sc <sup>8</sup>	121 ey <sup>2</sup>
60 w <sup>e</sup> c2	91 y <sup>53iY</sup> sc <sup>8</sup> Y; sc <sup>Sl</sup>	122 ey <sup>D</sup> /ci <sup>D</sup>
61 w <sup>h</sup>	B InS w <sup>a</sup> sc <sup>8</sup>	123 sv <sup>n</sup>
62 w <sup>r</sup> sc <sup>8</sup> InS	<u>Chromosome 2</u>	<u>Multichromosomal and</u>
63 w <sup>s</sup> at	92 b	<u>Translocations</u>
64 w <sup>t</sup>	93 b j pr cn	124 B; Cy/+
65 X <sup>c2</sup> (closed-X)	94 b pr vg	125 B; ru h st p <sup>p</sup> ss e <sup>s</sup>
66 y	95 b pr vg a sp	126 y v; bw <sup>VA</sup> /L <sup>2</sup> <u>1</u>
67 y <sup>3P</sup>	96 bw	127 cn bw ell
68 y ac sc pn sn	97 cn vg bw	128 bw; st
69 y ac sc pn w rb cm	98 dp b	129 L <sup>2</sup> /+ sp; th
ct <sup>6</sup> sn <sup>3</sup> ras <sup>4</sup> v m g	99 dp pr px/Cy pr	130 sc cv v; ri
f car/y sc <sup>Sl</sup> B InS	100 L <sup>2</sup> /Cy	131 sp; th
70 y B <sup>207-47</sup>	101 pr	132 T(1;2)7/C1B
71 y ct <sup>6</sup>	102 S/NS, px sp	133 T(1;2)B <sup>bd</sup> /Cy ♀ x
72 y f car	103 sp	M2e/Cy ♂
73 y f Eb/sc <sup>Sl</sup> B InS	104 stw <sup>3</sup>	134 T(1;2)Bld/Cy
w <sup>a</sup> sc <sup>8</sup>	105 vg	135 T(2;3)bw <sup>VDe4</sup> /Cy
74 y Hw g In49 m ♂ &	<u>Chromosome 3</u>	136 y; ca
y f:= ♀	106 ca	137 y; pr; ss
75 y rb ct <sup>6</sup>	107 D <sup>3</sup> /InP	138 y; ro
76 y sc	108 e <sup>s</sup>	139 y <sup>Si</sup> sc <sup>8</sup> InS y <sup>3P</sup> ; al <sup>2</sup> Cy
77 y sc <sup>15</sup>	109 gl	lt <sup>3</sup> sp <sup>2</sup> /dp b Pm <sup>1</sup> ; ru h
78 y sc w <sup>a</sup>	110 Hn <sup>r2</sup>	D <sup>3</sup> InScXF ca/Sb In(3R)
79 y sc w <sup>e</sup> ec rb	111 ri <sup>2</sup>	140 y ct <sup>6</sup> ; ro
80 y w	112 ro	141 +; sv <sup>n</sup> ♂ x +.=; sv <sup>n</sup> ♀
81 y w sn <sup>3</sup>		
82 y w f Bx <sup>2</sup>		

Uppsala: Royal Agricultural College of Sweden,  
Institute of Plant Systematics and Genetics

Wild Stocks

- 1 Algeria
- 2 Canton-S
- 3 Florida
- 4 Karsnäs
- 5 Oregon
- 6 Stäket
- 7 Tunnelgatan
- 8 Örebro

Chromosome 1

- 9 B
- 10 ct<sup>6</sup>
- 11 rb ct

- 12 sc t<sup>2</sup> vf ♂ & y f:= ♀
- 13 sc<sup>Sl</sup> B InS w<sup>a</sup> sc<sup>8</sup>
- 14 w
- 15 w ct
- 16 w<sup>e</sup>
- 17 w<sup>e</sup> ct
- 18 y
- 19 y Eb/sc<sup>Sl</sup> B InS w<sup>a</sup> sc<sup>8</sup>
- 20 y rb
- 21 y rb ct
- 22 y ct

Chromosome 2

- 23 bw
- 24 cn bw vg

- 25 fes lt<sup>3</sup>/Cy al<sup>2</sup> lt<sup>3</sup> L<sup>4</sup> sp<sup>2</sup>
- 26 L<sup>2</sup>/Cy
- 27 S/NS px sp
- 28 vg

Chromosome 3

- 29 D<sup>3</sup>/In P
- 30 se
- 31 ss
- 32 st ss e<sup>11</sup>

Multichromosomal

- 33 T(2;3)bw<sup>VDe4</sup>/Cy
- 34 y<sup>Si</sup> sc<sup>8</sup> InS y<sup>3P</sup>; al<sup>2</sup> Cy lt<sup>3</sup>  
sp<sup>2</sup>/dp b Pm<sup>1</sup>; ru h D<sup>3</sup> InScXF  
ca/Sb In(3R)



## NEW MUTANTS

Report of A. J. Bateman

Ex<sup>P</sup>: Beadex<sup>P</sup> Offspring male fed on P32. Almost recessive, though homo- and hemizygotes have full expression of wing characters together with frequently reduced eye size, removal of postvertical bristles and ocelli. Crossing over much reduced at right end of X: (0.6% between f and car). At time of writing the cause of this has not been discovered. RK3A.

clv-2<sup>52b</sup>: cloven thorax no. 2<sup>52b</sup> Offspring of X-rayed male. Answers well to Muller's description of original mutant, with inclusion of individuals without any dorsal thorax at all. These flies still have six legs and survive if nursed. Viability better than Muller's allele (30%) with penetrance 50%. The apparently wild-type males are fertile, the rest sterile. Completely recessive. RK5.

sta<sup>P</sup>: stubarista<sup>P</sup> (Listed in DIS-25 as crm.) Though no tests for allelism have been made, there can be little doubt that the mutant is an allele of this locus, without the bristle effect of Oliver's sta but less viable, sterile, and with the wings frequently beaded. During the year kept heterozygous in stock, viability has fallen to 4% and wing effect has been enhanced. RK3.

Other reoccurrences as a result of P32 treatment were t<sup>P</sup>(tan<sup>P</sup>) and discarded mutants of v and cv, all typical.

Report of G. Benz

1(2)bl: letal-bluter E. Käfer, 50b. 2-43.8±. From X-rayed Berlin inbred male. Lethal at the end of the pupal stage. Homozygotes make hatching movements, then lose hemolymph and die. Pupae black, stained by discharged hemolymph. "Durchbrenner" possible: no visible defect, perfectly viable and fertile.

1(2)pm: letal-polymorph E. Käfer, 50b. 2-30.3±. From X-rayed Berlin inbred male. Phases of lethality distributed over larval and pupal stages. Homozygotes which reach the pupal stage show long, narrow puparia. Imagines often cryptocephalic. Modifiers may abolish the lethal effect of this factor. "Durchbrenner" viable and fertile.

Report of A. H. Hersh

rai: raisin 3-17±. Deep brown eye color indistinguishable from sepiä. Appeared spontaneously in student laboratory culture; hatching occurs about a day or two later than wild-type. Locus determined by Roger H. Stanley (unpublished master's thesis at Western Reserve University).

Report of W. M. Hexter

Su<sup>3</sup>-ss: Suppressor no. 3 of spineless Hexter, 1950. 3-61±. No crossing over, in 8000 flies, between Su<sup>3</sup>-ss and Su<sup>2</sup>-ss (DIS-24, p. 59). Spontaneous in stock of se ss. Homozygous fully viable. ss Su<sup>3</sup>-ss homozygotes appear wild-type for all bristles. ss Su<sup>3</sup>-ss/ss + is intermediate between

and 100 per cent distinguishable from ss homozygotes and wild-type. ss  $Su^3$ -ss/ss bx  $Su^2$ -ss is phenotypically wild-type. RK4.

#### Report of Philip E. Hildreth

pa: platinum Hildreth, 5lh. 1-23.1. From deuteron-irradiated Canton-S male. Body almost colorless, but has pale yellowish-green appearance. Bristles are colorless and translucent except for their bases, which are dark. Observed only in males, and these are very weak. All males tested were sterile. When balanced with our Muller-5 stock and when tested with y cv v f, a few males emerged from pupa cases, and died almost immediately. When tested with  $sn^3$  lz<sup>8</sup> v under similar conditions more males emerged and were stronger, but died within about two days. Localized genetically with  $sn^3$  lz<sup>8</sup> v as markers.

ta: tarry Hildreth, 5li. 1-27.7  $\pm$  0.4. From deuteron-irradiated Canton-S male. Not fully penetrant, and expressivity ranges from small black spots on the distal end of the femur or proximal end of the tibia to severe cases in which the tibia, femur, and bases of the coxae are encapsulated in a dark brownish-black, glossy covering. Often the legs are stuck together or to the body by means of the black substance. The legs of affected flies are weak. Viability is reduced, and under crowded conditions is poor. Localized genetically with  $sn^3$  lz<sup>8</sup> v as markers. There was 0.4 per cent crossing over with lz<sup>8</sup>, and there is slight evidence that ta is to the left of lz<sup>8</sup>. Possibly ta is a less severe allele of me, focal melanosis; me was described by Gowen in 1934, but has since been lost or discarded.

#### Report of Ralph Hillman

A<sup>53g</sup>: Abnormal<sup>53g</sup> (Abnormal abdomen<sup>53g</sup>) Hillman, 53g. Spontaneous recurrence of A (Morgan, 1lg) in X-ray-induced, sex-linked lethal over Muller-5 stock. Highly variable, changing from extremely abnormal to moderately abnormal, slightly abnormal, and normal flies as cultures age. Homozygous female has greater penetrance than hemizygous male, which has greater penetrance than heterozygous female. Extreme flies lose tergites 2-8, whereas with slight penetrance there is merely a loss of the lateral part of tergite on one or more segments. Crossover data indicate locus to the right of and close to white. Flies observed correspond to figures 4 and 5 in Morgan and Bridges, 1916, Carnegie Publication No. 237, plate 1. Stock maintained over In(1)dl<sup>49</sup>. RK2.

#### Report of Taylor Hinton

In(2LR)40d/Cy sp<sup>2</sup> (D2): Inversion (2LR)40d experimental D2 Hinton, 1953. The wild-type third chromosomes are from a stock of Bl L<sup>2</sup>/Cy bw sp<sup>2</sup>. The second chromosomes are the same as in the stock In(2LR)40d/Cy sp<sup>2</sup>.

In(2LR)40d/Cy sp<sup>2</sup> (D3): Inversion (2LR)40d experimental D3 Hinton, 1953. The second and third chromosomes from In(2LR)40d recovered after outcrossing to Cy/Pm; D/Sb.

In(2LR)40d/Cy sp<sup>2</sup> (R2): Inversion (2LR)40d experimental R2 Hinton, 1953. The wild-type third chromosomes are from a stock of Ore-R. The second chromosomes are the same as in the stock In(2LR)40d/Cy sp<sup>2</sup>.



In(2LR)40d/Cy sp<sup>2</sup> (R4): Inversion (2LR)40d experimental R4 Hinton, 1953. The second and third chromosomes from In(2LR)40d recovered after outcrossing to Ore-R.

T(2:3)Hin 105/Cy sp<sup>2</sup>; DcxF: Translocation of Hinton no. 105 Hinton, 1949. Detected by genetical means in an offspring of X-rayed In(2LR)40d. Salivary analysis, Hinton, shows breaks as follows: 2R at 56C; 3L at 73F. The original inversion lost from the translocation.

T(2:3)Hin 113: Translocation of Hinton no. 113 Hinton, 1949. Detected by genetical means in an offspring of X-rayed In(2LR)40d. Salivary analysis, Hinton, shows breaks as follows: 2R at 49/50; 3L after 80D. The original inversion lost from the translocation. Homozygote viable.

#### Report of Ada Lederman-Klein

ds<sup>52k</sup>: dachsous<sup>52k</sup> 2-0.3. Extracted from wild population. Allelic to ds<sup>33k</sup>. Tarsi four-jointed, legs stumpy and held together, wings wide apart, crossveins close and sometimes incomplete, eyes small. High mortality of newly hatched adults. Low fertility in both males and females. Viability of adults heterozygous for this allele and for ds<sup>33k</sup> (inseparable from Pm) much better than that of homozygous ds<sup>52k</sup>. RK4.

#### Report of G. Lefevre, Jr.

Dp(1;4)w<sup>m52b13</sup> Ratty. A mottled duplication of the white locus produced by X-rays from rst<sup>3</sup>. A segment of the rst<sup>3</sup> X chromosome extending from band 2A3-4 through 3C2-3 has been inserted in the heterochromatic region of the fourth chromosome.

Dp(1;2)w<sup>m52b12</sup> Ratty. Similar to the duplication described above, but extending from band 1F1-2 through 3C2-3, and inserted in chromosome 2 so close to the centromere that in salivary preparations it is not possible to say whether it is in the right or left arm.

Dp(1;2)w<sup>m53a4</sup> Farnsworth. A mottled duplication of the white locus produced by X-rays in a v f stock. A segment of X chromosome extending from at least band 3C1 through 3C9-10, and possibly including bands 2B3-4 and 3C11-12, has been inserted in the heterochromatic region of chromosome 2. The deficiency left in the X chromosome produces a white-Notch mutant, N<sup>53a4</sup>.

f<sup>53a13</sup>: forked<sup>53a13</sup> Farnsworth, 53a. An X-ray-induced reversion from f. In males, shows a nearly wild-type appearance, though bristles are slightly shorter and thicker than normal. Over f in females, shows a very slight f phenotype; and over f<sup>e</sup>, appears as a moderate forked mutant.

Several white deficiencies produced by X-rays in rst<sup>3</sup> X chromosomes are carried in the Salt Lake City stock list. These are: w<sup>52a25c</sup>, w<sup>52a25d</sup>, w<sup>52a29</sup>, w<sup>52b12</sup>, w<sup>52b13</sup>, w<sup>52c31a</sup>, w<sup>52c31b</sup>.

#### Report of E. B. Lewis and Rhoda F. Mislove

FM1: First Multiple 1 Designator for X-chromosome balancer consisting of the two inversions, sc<sup>8</sup> and dl-49. Usually carries y<sup>31d</sup>, w<sup>a</sup>, lz<sup>s</sup>, and B,



which were introduced by Schultz and Curry.

SM1: Second Multiple 1 Mislove, 1953. From X-rayed Cy,  $al^2$   $sp^2$  chromosome. Salivary-gland-chromosome analysis by Lewis shows a pericentric inversion superimposed upon both Cy inversions; the two new breaks occur just after 22A3 and near the end of section 60B. Useful for insuring against the loss of the 2R Cy inversion, since single crossovers between the two Cy inversions are expected to result in Minute or inviable Df-Dp types.

SM2: Second Multiple 2 Mislove, 1953. From X-rayed SM1,  $al^2$  Cy  $sp^2$  chromosome. Associated with recessive light-variegation ( $lt^v$ ) due to break in 2L heterochromatin. Salivary-gland-chromosome analysis by Lewis shows two new breaks superimposed upon the six breaks of the SM1 chromosome; the new breaks are in 21A, the extreme distal end of 2L, and in 40F. Useful balancer, especially for mutants located near the centromere of 2.

TM1: Third Multiple 1 New symbol and name for In(3LR)TM, which is a complex rearrangement derived from T(2;3)Mé and described in DIS-23, p. 92. Usually carries the mutants, Mé and ri, as well as an inseparable recessive lethal stubboid allele, which causes TM1/Sb to die.

#### Report of K. G. Luning

$y^{53iY}$ : yellow Luning, 53i. In a  $sc^8$  Y chromosome from an irradiated male. Heterozygous males  $y$ ;  $y^{53iY}$   $sc^8$  Y give a yellow phenotype. Heterozygous males  $y^1$ ;  $y^{53iY}$   $sc^8$  Y are viable, which indicates that  $y^{53iY}$  is not lethal. It is not associated with an ac mutation;  $y$  ac;  $y^{53iY}$   $sc^8$  Y flies are phenotypically  $y$  ac<sup>+</sup>. Good viability.

$y^{53el2}$ : yellow Luning, 53e. In an irradiated  $sc^{S1}$  B InS wa  $sc^8$  (Muller-5) chromosome. Recessive lethal. The lethality is covered by  $sc^8$  Y. A true breeding stock homozygous for this lethal is prepared:  $y^{53el2}$  M-5/ $y^{53el2}$  M-5;  $sc^8$  Y ♀♀ x  $y^{53el2}$  M-5;  $sc^8$  Y. This stock is used for class demonstrations of secondary nondisjunction.

#### Report of Helen U. Meyer

$ds^{53h}$ : dachsous-dachsoid<sup>53h</sup> Meyer, 53h. 2-0.3. Ultraviolet induced, in chromosome carrying ms sp. Similar to  $ds^{51a}$  reported in DIS-25; rounded wing, crossveins close, legs have thickened coxae. Flies are of low viability; females sterile. RK3.

stw<sup>7</sup>: straw<sup>7</sup> Meyer, 53f. 2-55.1. Ultraviolet induced. Mild allele of straw; always affects bristle color, but coloration of wing occasionally overlapping wild-type. Homozygous flies hatch late, have poor viability. Present in  $dp^0$  stw<sup>7</sup> ta stock. RK3.

ca<sup>52d</sup>: claret<sup>52d</sup> Meyer, 52d. 3-100.7. Ultraviolet induced in chromosome marked by h. Good viability, no sterility effects in females like ca<sup>50</sup> (DIS-25) which was also induced by ultraviolet treatment. RK1.

ri<sup>53j</sup>: radius incompletus<sup>53j</sup> Meyer, 53j. 3-47.1. Spontaneous in Bloomington stock gl4. Similar and allelic to ri; stronger than ri<sup>51k</sup> (DIS-26). RK1.

Report of Rhoda F. Mislove

gg<sup>3</sup>: goggle-3 Mislove, 53d. 1-23.1±. Spontaneous in al stock. Similar to gg<sup>1</sup>. Males and females fertile, but viability low. Relocation of gg suggested on basis of no crossovers with oc (1-23.1) among 4300 flies, and no suppression of crossing over by gg<sup>3</sup> in the sn-oc region.

Report of J. Mossige

w<sup>Bwx</sup>52a: white-Brownex 52a Mossige. 1-1.5. Spontaneous as males in st stock. Eye color like bw. Not sexually dimorphic. Testis sheath colorless, larval Malpighian tube very pale yellow. Homozygous females inseparable from compounds with other w alleles and with N<sup>8</sup>. Is dominant in heterozygous females, which are a darker, duller shade than +, from which it is readily distinguished. Crossing over reduced in immediate neighborhood; sc - w<sup>Bwx</sup> = 0.4 and w<sup>Bwx</sup> - fa = 1.0. Exact interpretation of salivaries made difficult by irregularity at w locus. RKL.

Report of T. Nakayama

L<sup>52c</sup>: Lobe<sup>52c</sup> Nakayama, 52c. Appeared among vg<sup>no</sup> flies treated with low temperature (17° C) during later larval life. Like typical L, but not tested for allelism with L.

Report of J. Rickenbacher

pol: poliert E. Hadorn, 51a. 4- (Locus not covered by T(2;4)b, thus pol distal to region 102C--personal information from E. B. Lewis.) Pub. Rickenbacher, 1954, Z. f. Vererbungslehre, in press. Spontaneous in a Zürich wild stock. Eyes glassy-like brilliant, somewhat smaller than normal, no facets. Fluorescent substances in chromatograms normal. Developmental effect: during second day of pupal life withdrawal of the retinula cells from the other cells of the eye disc. pol +/+ spa shows normal eyes, yet in pol +/+ spa<sup>Cat</sup> there is enhancement of the Cat effect. Homozygotes pol/pol fully viable and penetrant. RKL.

Report of Laboratoire de Génétique Formelle du C.N.R.S. (France)

ref: refractaire Ohanessian-Guillemain, 53b. Found in Franche-Comté wild stock. No known morphological effect. Growth of CO<sub>2</sub>-sensitivity virus is inhibited when in homozygous state. Located in chromosome 2 between black and vestigial. Recombination with black is 4.3±2.2. RKL.

## STOCK LISTS

AMHERST, MASSACHUSETTS: AMHERST COLLEGE

D. algonquin: Amherst, 1952	D. narragansett: Amherst, 1952
Amherst, 1953	D. narragansett: Amherst, 1953
D. funebris: Amherst, 1953	D. robusta: Amherst, 1952
D. melanica: Amherst, 1952	D. simulans: South Africa (Poulson)

AUSTIN, TEXAS: THE UNIVERSITY OF TEXAS

Note: Only *D. virilis* stocks are listed here. Some other species stocks are on hand, but no list is available.

*D. virilis*

<u>Wild Stocks</u>	<u>Plurals</u>	<u>X-III</u>
1 Pasadena	29 b bk dt (H)	53 se y sc; cn t
	30 b dt	
<u>Chromosome I (X)</u>	31 $I^{XB}/R$ va (Select)	<u>X-IV</u>
<u>Singles</u>	32 $I^{XB}/va$ (Select)	54 $w^e$ ; cd
2 ap <sup>40e-10</sup>	33 $I^{XBM}/R$ va (Select)	<u>X-IV-V</u>
3 v <sup>48b</sup>	34 $I^{XBM}/b$ bk (Select)	55 $w^e$ ; cd; pe
4 $w^e$	<u>Chromosome IV</u>	<u>X-V</u>
5 $w^{eo}$	<u>Singles</u>	56 ap (y ec): (dc) es
6 y <sup>re</sup>	35 cd	57 (ec) cv v; es
<u>Plurals</u>	36 Sc	58 se y sc; dc es
7 Bx w (Japan)	<u>Chromosome V</u>	59 se y sc; st (B <sup>3</sup> )
8 ch <sup>2</sup> ap	<u>Singles</u>	60 v <sup>40d</sup> ; es
9 ch <sup>2</sup> dy (Japan)	37 a	61 v <sup>48a</sup> ; es
10 (cv) mt' ap <sup>40e</sup>	38 B <sup>4</sup>	62 v <sup>48b</sup> ; es
11 cv v dy	39 pe (Jap)	63 $w^e$ ; pe
12 cv v mt' w	<u>Plurals</u>	64 $w^e$ ; st es B <sup>3</sup>
13 ec cv v si <sup>2</sup> mt' w	40 (dc) es pe (Jap)	65 $w^e$ ; st pe
14 ec cv v <sup>40a</sup> $w^e$	41 es B <sup>3</sup>	<u>II-III-IV-V</u>
15 ec mt' w	42 es pe (Jap)	66 b; t; cd; pe
16 mt' sb	43 ru st (es) B <sup>3</sup> pe	67 b; tb gp; cd; pe
17 mt <sup>4</sup> Bx w	44 ru st pe	68 R; tb gp; cd; pe
18 se.y' sc cv	45 st B <sup>3</sup>	69 R; gp; cd; pe
19 se y' sc ec	46 st es B <sup>3</sup> (Japan)	<u>II-IV-V</u>
20 $w^e$ ap	47 st es pe	70 (b) bk (dt); cd; es
21 y(ch)mt Bx w	48 st mh	71 b; cd; es
22 y ch <sup>2</sup> mt	49 st pe	72 R; cd; pe
23 y mt sb	<u>Chromosome VI</u>	73 va; px <sup>2</sup> ; pe
24 y mt w	50 ac g <sup>1</sup>	<u>II-IV-VI</u>
25 y <sup>40a</sup> $w^e$ ap	<u>Multichromosomal Stocks</u>	74 va'; px <sup>2</sup> ; gl
26 y <sup>40a</sup> ec ap <sup>40e</sup>	<u>X-II-IV-V</u>	<u>II-V</u>
27 y <sup>40a</sup> ec mt'	51 y'; va; px <sup>2</sup> ; st	75 b bk dt; st B <sup>3</sup>
<u>Chromosome II</u>	52 y; tb; px; st	76 R; B
<u>Single</u>		
28 R (Jap)		



II-VI

77 va; gl  
78 R; gl

III-IV-V

79 cn; px; pe

III-V

80 cn; es (dc) (t)  
81 tb gp<sup>2</sup>; st i

IV-V

82 cd; (dc) es  
83 cd; pe  
84 px<sup>2</sup>; pe

Translocations

85 Y-2 III (G2)\*  
86 Y-2 V (A6)  
87 Y-3 II (D3)  
88 Y-3 III (F3)  
89 Y-3 V-2-6 (D1)  
90 Y-3 V-7-4 (F-5)  
91 Y-4 I (E-3)  
92 Y-5 II (A-5)  
93 Y-5 III (G-3)

\*Indicates position of break on the autosome according to Griffen's map (Patterson, J. T., Stone, W. S., and Griffen, A. B., 1940, Univ. of Texas Publication 4032: 218-251).

BERKELEY, CALIFORNIA: UNIVERSITY OF CALIFORNIA

D. simulans	D. virilis: Pasadena 10 <sup>k</sup>	Zaprionus vittiger
D. simulans: Florida	Pasadena wild scarlet	

BLACKSBURG, VIRGINIA: VIRGINIA POLYTECHNIC INSTITUTED. robusta

Homozygous stocks (10 stocks homozygous for gene arrangements in all arms, derived by inbreeding from wild strains; notation of arrangements as in Carson, H. L., 1953, Genetics 38: 168-186):

<u>No. of strains</u>	<u>X 2 3</u>	<u>Origin of wild strain</u>
1	SS; SS; SS	Yonkers, N. Y.
1	S2; SS; SS	Blacksburg, Va.
1	S2; SS; 1S	"
1	S2; 1S; SS	"
1	S2; 2S; SS	"
1	S2; 3S; SS	"
1	12; 1S; SS	"
2	12; 3S; SS	"
1	22; 1S; 1S	"

Rare arrangement stocks (3): 2L-5; 3R-2; and 3R-1, 3L Ring.

Other: 34 wild strains from Blacksburg, Va., homozygous for 2-5 arms.

CAMBRIDGE, MASSACHUSETTS: HARVARD UNIVERSITYD. pseudoobscuraWild Stocks

(Homozygotes for different gene arrangements in the third chromosome from Piñon Flat, California)  
Standard (14 strains)  
Chiricahua (13 strains)  
Arrowhead (6 strains)

Chromosome 1 (X)

1 se ll sp tt  
2 y sn v co sh

Chromosome 2

3 up bx Ba gl inversion/lethal  
4 gl

Chromosome 3

5 L or (Santa Cruz)/lethal Cuernavaca  
6 or Bl sc pr (Standard)/lethal Cuernavaca  
7 or pr

Chromosome 4

8 in hk j

COLD SPRING HARBOR, NEW YORK: CARNEGIE INSTITUTIOND. simulans

1 ah b py sd pm                      3 b  
2 v 4, ca/+ ♀ ca ♂                      4 v

D. virilisWild Stocks

0 Americana  
1 China-a

Chromosome 1

3 ec c v si<sup>2</sup>  
4 mt<sup>4</sup> w Bx  
6 mt f  
7 sc v ap  
8 w Bx  
9 w<sup>D</sup> r d  
10 y<sup>re</sup>

Chromosome 2

11 R Pu

Chromosome 3

12 G cn  
13 sv tb

Chromosome 5

14 B<sup>5</sup>  
15 es dc  
16 st mk  
17 sv<sup>5</sup>

Chromosome 6

18 gl

Combined

19 gl; R

20 R; B  
21 R; G; B  
22 tb; Gp<sup>2</sup>; pe  
23 tb; Gp<sup>2</sup>; ru i  
24 va; px<sup>2</sup>  
25 y; tb; px<sup>2</sup> st

Unstable Genes

27 mt<sup>3</sup> gamma  
28 mt<sup>3</sup> gamma, S<sub>1</sub>  
29 mt<sup>3</sup> m<sup>a</sup>  
30 mt<sup>3</sup> R  
31 mt<sup>3</sup> S<sub>3</sub>  
32 L<sup>4</sup>  
33 eyeless Maas mutant  
34 Bodenstein

EVANSTON, ILLINOIS: NORTHWESTERN UNIVERSITY

Note: Stock list unchanged. See DIS-26, p. 71.

KNOXVILLE, TENNESSEE: UNIVERSITY OF TENNESSEE

*D. ananassae*: Haiti, 1952 (1 strain)  
Puerto Rico, 1953 (1)  
*D. mirim*: Puerto Rico, 1953 (1)  
*D. nebulosa*: Puerto Rico, 1953 (1)  
*D. paulistorum*: Cuba, 1950 (1); 1952 (5)  
Dominican Republic, 1952 (3)  
Jamaica, 1952 (3)  
Puerto Rico, 1953 (2)  
*D. prosaltans*: Jamaica, 1952 (1)  
*D. sturtevantii*: Haiti, 1952 (1)  
*D. tropicalis*: Cuba, 1950 (6); 1952 (6)  
Dominican Republic, 1952 (5)  
Haiti, 1952 (2)  
Jamaica, 1952 (1)  
Puerto Rico, 1952 (2); 1953 (3)

*D. willistoni*: Cuba, 1950 (4)  
 Dominican Republic, 1952 (5)  
 Florida, 1951 (1); 1952 (2)  
 Haiti, 1952 (4)  
 Jamaica, 1952 (4)  
 Puerto Rico, 1952 (2); 1953 (6)

LEXINGTON, KENTUCKY: UNIVERSITY OF KENTUCKY

*D. ananassae*: wild strain from Baracoa, Cuba, 1952  
*D. hydei*: wild strain from Great Smoky Mountains National Park, Tennessee, 1953  
*D. immigrans*: wild strain from Great Smoky Mountains National Park, Tennessee, 1953  
*D. transversa*: wild strain from Great Smoky Mountains National Park, Tennessee, 1953

LINCOLN, NEBRASKA: THE UNIVERSITY OF NEBRASKA

<i>D. affinis</i>	<i>D. narragansett</i>
<i>D. algonquin</i>	<i>D. persimilis</i>
<i>D. azteca</i>	<i>D. pseudoobscura</i>
<i>D. melanica</i>	<i>D. robusta</i>

LOS ANGELES, CALIFORNIA: UNIVERSITY OF CALIFORNIA

*D. pseudoobscura*

Lethal Strains: Third-chromosome lethals and semilethals from wild males collected at two stations in the San Jacinto mountains, Piñon Flat (PF) and Vandeventer Flats (VF). Inversion type of wild third indicated. Balanced over Lb or In(Santa Cruz).

1952 Collections

PF: 14 strains

VF: 25 strains

1953 Collections

Third-Chromosome Inversion Type	PF			VF			
	Feb 2	Mar 6	Apr 23	Feb 10	Mar 15	Mar 27	Apr 24
Standard	21	18	24	19	3	20	13
Arrowhead	15	9	8	8	10	7	15
Chiricahua	2	2	6	3	2	9	5
Treeline	8	7	5	10	4	9	5
Pikes Peak	1	1	1	0	0	3	3
Olympic	1	1	0	0	0	0	0

Further analyses of June, July, and September collections are being made.

Second-chromosome lethals and semilethals derived from wild males.  
 Balanced over Ba gl, In.

PF: 25 strains

VF: 32 strains



Wild Strains: Genetically homozygous third chromosomes from wild males collected in the San Jacinto Mountains.

Chiricahua: 3 strains

Olympic: 6 strains

Santa Cruz: 2 strains

<u>Mutants</u>	<u>Chromosome 3</u>	<u>Multichromosomal</u>
<u>Chromosome 1</u>	3 or	9 or; gl
1 y sn v co sh	4 pr	
	5 or pr	
<u>Chromosome 2</u>	6 or Bl Sc pr cv/ <u>1</u> , In (Cuernavaca)	
2 upt bi Ba gl, In/ <u>1</u>	7 Lb or, In(Santa Cruz)/ <u>1</u> , In(Cuernavaca)	
	8 or Bl Sc pr cv/Lb or, In(Santa Cruz)	

NEW HAVEN, CONNECTICUT: YALE UNIVERSITY

D. americana americana (Independence)	D. laticola (Fairbank, Minn.)
D. americana americana (Western)	D. melanica (Walnut C.)
D. americana texana (Florida)	D. montana (Cottonwood Canyon, Utah)
D. ananassae (Cristobal)	D. nebulosa (Georgetown)
D. borealis (Chester, Idaho)	D. novamexicana
D. flavomontana (Yampa R., Colo.)	D. repleta (New Haven, Conn.)
D. funebris (Rexburg, Idaho, #2)	D. sellata (Chilpancingo)
D. funebris (Stockholm)	D. simulans (S. Africa)
D. funebris (Upperville, Va.)	D. takahashii (Formosa)
D. funebris (white eye of Kiil)	D. virilis (Japan)
D. gibberosa (S. Mexico)	D. willistoni (Quirigua)
D. hydei (Yucatan-4)	

NEW YORK, NEW YORK: COLUMBIA UNIVERSITY

(Th. Dobzhansky)

D. paulistorum

<u>Chromosome 1</u>	<u>Autosomal</u>
w	Unidentified recessive eye-color mutation

D. persimilis

<u>Wild: 16 strains</u>	<u>Chromosome 2</u>	<u>Multichromosomal</u>
<u>Chromosome 1</u>	Delta ca	Delta or Cy
Pt	Delta ca(In)/leth	
se	ss <sup>a</sup>	

D. prosaltans

<u>Wild: 12 strains</u>	<u>Chromosome 2</u>	<u>Chromosome 3</u>
<u>Chromosome 1</u>	Pm	Delta ar(In)/leth
w y/sc	Bd Cy	ar
s m ct/fa(Tl-2)	L px	
m y se	grv	
sex ratio/m y se	Pm S Cy(In)/leth	

D. pseudoobscura

Wild strains homozygous for different gene arrangements in the third chromosome:

## Pinon, California

Standard (12 strains)

Chiricahua (12 strains)

Arrowhead (11 strains)

## Mexico

Chiricahua (12 strains)

Wild strains collected in 1950

Mather, California (12)

Lehman Cave, Nevada (14)

Mono Lake, California (28)

Wild strains (geographical): 33 strains

Chromosome 1Pt w<sup>e</sup> mg

y sn v co sh

ct se ll sp tt

sex ratio/y sn v co sh

Homoterminal sex ratio

Chromosome 2

ca

gl

up bx Ba gl(In)/leth

Chromosome 3

or

or pr

or px

or Sc pr cv

or Bl Sc pr(In)/leth Cuernavaca

Em/intersex I

Em/intersex II

L or (Santa Cruz)/leth Cuernavaca

Chromosome 4

in hk j

in hk j Cy(In)/leth

Chromosome 5

spark

Multichromosomal

Ba or Cy

Ba Cy spark

D. willistoni

Wild: 28 strains

Chromosome 1

sc In se re (Belem)/y (Rio)

w<sup>e</sup> sc In ru (Belem)/y (Rio)w<sup>e</sup> loz pn (Belem)w<sup>e</sup> sn y In ru (Belem)/r st (Rio)w<sup>e</sup> sc ct pn (Belem)/r st (Rio)

y

sc

w

Chromosome

Chromosome 2

S Hk abb bw/Hk abb bw

S Hk abb bw(In)/leth

abb bw

ca

Chromosome 3

Ri/pink

Delta pink(In)/leth

pink

lb bx

ebony

Delta pink

Other Species

D. athabasca

D. azteca (2 strains)

D. bocainensis

D. capricorni

D. cardinoides

D. equinoxialis (2)

D. fumosa

D. gibberosa

D. miranda

D. mirim

D. montana

D. montium

D. nebulosa (2)

D. neocardini

D. pallidipennis

D. paulistorum (2)

D. polymorpha

D. sturtevantii (2)

D. tropicalis (2)

OAK RIDGE, TENNESSEE: OAK RIDGE NATIONAL LABORATORYD. virilis

<u>Wild Stock</u>		<u>Heterozygous Translocations</u>
1 Pasadena	18 pe	
<u>Chromosome 1</u>	19 pe <sup>Jap</sup>	41 T(Y;5)pe <sup>m1</sup>
2 mt <sup>7</sup>	20 ru pe <sup>Jap</sup>	42 T(4;5)pe <sup>m3</sup>
3 v <sup>48b</sup>	21 ru st pe <sup>Jap</sup>	43 T(Y;5)pe <sup>m15</sup>
4 w	22 st B <sup>3</sup>	44 T(Y;5)pe <sup>m15</sup> (11 chro-
5 y <sup>40a</sup> ec ch dy	23 st es pe <sup>Jap</sup>	mosome stock)
<u>Chromosome 2</u>	24 st mh	45 T(2;3;5)pe <sup>m19</sup>
6 va(R?)	25 st(mh?)pe <sup>Jap</sup>	46 T(2;5)pe <sup>m20</sup>
<u>Chromosome 3</u>	26 st pe <sup>Jap</sup>	47 T(4;5)pe <sup>m22</sup>
7 cn	<u>Multichromosomal</u>	48 T(1;5)pe <sup>m24</sup>
8 sv	27 b; pe <sup>Jap</sup>	49 T(4;5)pe <sup>m25</sup>
9 sv tb gp	28 b; t; cd; pe <sup>Jap</sup>	50 T(3;5)pe <sup>m29</sup>
10 t	29 b; t; pe <sup>Jap</sup>	51 T(4;5)pe <sup>m31</sup>
11 t tb gp	30 b; tb gp; cd; pe	52 T(1;2;5)pe <sup>m32</sup>
12 tb gp	31 cn; px	53 T(1;4;5)pe <sup>m33</sup>
<u>Chromosome 4</u>	32 cn; px; pe	54 T(4;5)pe <sup>m34</sup>
13 cd	33 pe; gl	55 T(2;5)pe <sup>m35</sup>
<u>Chromosome 5</u>	34 sv; pe	56 T(2;5)pe <sup>m36</sup>
14 a	35 t; cd	57 T(1;5)pe <sup>m38</sup>
15 B <sup>4</sup>	36 t; pe	58 T(2;5)pe <sup>m39</sup>
16 B <sup>4</sup> pe <sup>Jap</sup>	37 v <sup>48a</sup> ; es pe <sup>Jap</sup>	59 T(4;5)pe <sup>m41</sup>
17 es B <sup>3</sup>	38 v <sup>48a</sup> ; pe	60 T(4;5)pe <sup>m42</sup>
	<u>peach-mottled stocks</u>	61 T(1;5)pe <sup>m45</sup>
	<u>Homozygous Translocations</u>	62 T(1;5)pe <sup>m46</sup>
	39 T(3;5)pe <sup>m4</sup>	63 T(1;5)pe <sup>m50</sup>
	40 T(3;5)pe <sup>m51</sup>	

PHILADELPHIA, PENNSYLVANIA: INSTITUTE FOR CANCER RESEARCH  
and LANFMAN HOSPITAL RESEARCH INSTITUTE

- D. busckii: wild-type (Abington, Pennsylvania)  
 D. funebris: wild-type B  
                   w (from B)  
 D. immigrans: wild-type (Abington, Pa.)  
 D. mirim: wild-type  
 D. pseudoobscura: wild-type (Piñon Chiricahua)  
                   P w<sup>HR</sup> mg<sup>2</sup> s  
                   P w<sup>e</sup> mg<sup>2</sup> s  
                   Ssc/sr 1; Y & P w<sup>HR</sup> mg<sup>2</sup> s  
                   sr<sup>2</sup>/w<sup>e</sup> mg<sup>2</sup> s & w<sup>e</sup> mg<sup>2</sup> s  
 D. robusta: wild-type (Abington, Pa.)  
 D. simulans: wild-type (South Africa)  
                   net pm (b, py, sd)  
 D. willistoni: wild-type (Belem)



PITTSBURGH, PENNSYLVANIA: UNIVERSITY OF PITTSBURGHD. persimilisWild Stocks

(Yosemite National Park, California)

Wildcat Creek (elev. 5000 feet) (15 strains)

Crane Flats (elev. 6000 feet) (12)

Gin Flats (elev. 7000 feet) (23)

White Wolf (elev. 8000 feet) (31)

AUSTRALIABrisbane: The University of Queensland, Department of Zoology

D. ananassae	D. simulans
D. busckii	D. spinofemora
D. enigma (victoria species group)	species H (victoria species group)
D. funebris	species L (victoria species group)
D. hydei	species N (mulleri subgroup)
D. immigrans	species O (Sophophora subgenus)
D. lativittata (victoria species group)	species P (victoria species group)
D. melanogaster	species Q (Pholadoris subgenus)
D. repleta	species R (melanogaster species group)
D. serrata (melanogaster species group)	

Melbourne: The University of Melbourne, Department of Zoology, Genetics Laboratory

- D. ananassae: single female strain from Cairns, Queensland  
D. busckii: Melbourne  
D. funebris: Melbourne  
D. hydei: strains from Melbourne and from Auckland, New Zealand  
D. immigrans: single female strains from Melbourne and from Brisbane, Queensland  
D. lativittata: Marysville, Victoria  
D. polyperi: Marysville, Victoria  
D. pullipennis: Marysville, Victoria  
D. pullissima: Beaconsfield, Victoria  
D. setifemur: from a single female taken at Cairns, Queensland, and inbred by single-pair matings for 15 generations  
D. simulans: single female strains from six localities in S.E. Australia  
D. spinofemora: University of Texas

AUSTRIAVienna: Institut f. allgemeine Biologie d. UniversitätNote: Stock list unchanged. See DIS-24, p. 69.

BRAZILCuritiba, Paraná: Universidade do Paraná, Faculdade de Filosofia,  
Ciências e Letras, Laboratório de Genética

- D. *ananassae*: Antonina (4 strains), Morretes (4), Paranaguá (2), and Passagem (7) in the state of Paraná; Belo Horizonte (8) and Uberlândia (1) in the state of Minas Gerais; Ilheus (1) and Salvador (4) in the state of Bahia; Recife (1) in the state of Pernambuco; Gaspar (3) and Itajaí (5) in the state of Santa Catarina; Rio de Janeiro (1) in the Federal District.
- D. *auraria*: Hangchow, China (1 strain).
- D. *betari*: Belo Horizonte (3 strains) in the state of Minas Gerais; Gaspar (2) and Itajaí (1) in the state of Santa Catarina; Cornélio Procopio (1) and Curitiba (1) in the state of Paraná; Sooretama (1) in the state of Espírito Santo.
- D. *hydei*: Curitiba (2 strains) in the state of Paraná; São Paulo (1) in the state of São Paulo; Itajaí (3) in the state of Santa Catarina.
- D. *immigrans*: Belo Horizonte (4 strains) in the state of Minas Gerais; Porto Alegre (1) in the state of Rio Grande do Sul.
- D. *montium*: Belo Horizonte (2 strains) in the state of Minas Gerais; Gaspar (2) and Itajaí (4) in the state of Santa Catarina; Irati (1), Morretes (4), Paranaguá (1), and Antonina (1) in the state of Paraná.
- D. *nebulosa*: Boa Esperança (1 strain) in the state of Minas Gerais; Lapa (1) in the state of Paraná; Del Rio, Texas, USA (1); Cuiabá (1) in the state of Mato Grosso.
- D. *repleta*: Florianópolis (1 strain) in the state of Santa Catarina.
- D. *simulans*: Antonina (1 strain), Curitiba (2 strains), Ilha do Mel (3), Irati (1), and Morretes (1) in the state of Paraná; Belo Horizonte (2), Uberlândia (1), and Boa Esperança (3) in the state of Minas Gerais; Floriano (3) in the state of Piauí; Itajaí (2) and Gaspar (2) in the state of Santa Catarina; Porto Alegre (1) in the state of Rio Grande do Sul; Sooretama (3) in the state of Espírito Santo.

São Paulo: Universidade de São Paulo, Faculdade de Filosofia, Ciências e  
Letras, Depto. de Biologia Geral

- D. *ananassae*: São Paulo (State of São Paulo)
- D. *bocainensis*: Cantareira (State of São Paulo)
- D. *caponei*
- D. *capricorni*: Bertioga and Mogi das Cruzes (State of São Paulo)
- D. *cardinoides*: Vila Atlântica and Mogi das Cruzes (State of São Paulo); Montes Claros (State of Minas Gerais)
- D. *equinoxialis*: Tefé and Içana (State of Amazonas)
- D. *fumipennis*: State of Rio Grande do Sul
- D. *funebri*: Chile
- D. *gaucha*: State of Rio Grande do Sul
- D. *grizcolineata*: Cantareira (State of São Paulo); Montes Claros (State of Minas Gerais)
- D. *guaramunu*: Cantareira (State of São Paulo); Montes Claros (State of Minas Gerais)
- D. *guarani*: Cantareira (State of São Paulo)
- D. *Hydei*: São Paulo (State of São Paulo)
- D. *immigrans*: São Paulo (State of São Paulo)
- D. *mercatorum*: São Paulo (State of São Paulo); Sta. Barbara (California, USA); Peru and Costa Rica
- D. *meridiana rioensis*: Atlixio (Mexico)



- D. montium*: São Paulo (State of São Paulo)
- D. nebulosa*: Tucuman (Argentina); Cantareira and São Paulo (State of São Paulo); Salvador and Catuni (State of Bahia); Rio Negro (State of Amazonas)
- D. neocardini*: Sooretama (State of Espírito Santo); Montes Claros and Governador Valadares (State of Minas Gerais); Rio Negro (State of Amazonas)
- D. neoelliptica*: Mogí das Cruzes (State of São Paulo)
- D. neosaltans*: Mogí das Cruzes (State of São Paulo)
- D. pallidipennis*: Cantareira (State of São Paulo); Montes Claros (State of Minas Gerais)
- D. parabocainensis*: Piracununga (State of São Paulo)
- D. paranaensis*: Belém (State of Pará); Imperatriz (State of Maranhão); Piracununga (State of São Paulo); Cataratas, C. Heitor, and Foz do Iguassú (State of Paraná); Sto. Angelo (State of Rio Grande do Sul)
- D. pararepleta*: Sta. Cruz de la Sierra (Bolivia); Tucuman (Argentina); Icem (State of Amazonas); Belém (State of Pará); Imperatriz (State of Maranhão); Monjolinho (State of Goiás); Federação (State of Bahia); Catuni (State of Bahia); Boa Esperança and Varginha (State of Minas Gerais); Imboassica, Jacarepaguá, Rio de Janeiro (State of Rio de Janeiro); Araras, Bertioga, Betari, Caraguatatuba, Cosmópolis, Grajaú, Guaianazes, Guararema, Horto Florestal de São Paulo, Ilha Bela, Ilha das Palmas, Itaiê, Mogí das Cruzes, Piracununga, São Paulo, São Sebastião, Registro, and Vila Atlântica (State of São Paulo); Barra do Pirai, Cataratas, Foz do Iguassú, Guaira, Lamberdor, and Morretes (State of Paraná); Agudo, Bagé, Caxias, Emboaba, Itapoan, Ponta Grossa, Reuter (State of Rio Grande do Sul); Palma (State of Goiás)
- D. paulistorum*: Rio Negro (State of Amazonas); Floriano (State of Piauí); Barreiras (State of Bahia); Montes Claros (State of Minas Gerais); Sooretama (State of Espírito Santo); Rio de Janeiro (State of Rio de Janeiro)
- D. peninsularis*: Florida (USA); Icem (State of Amazonas); Belém (State of Pará); Imperatriz (State of Maranhão); Catuni (State of Bahia); Monjolinho (State of Goiás); Jacarepaguá and Imboassica (State of Rio de Janeiro); Bertioga, Caraguatatuba, Mogí das Cruzes, Piracununga, São Paulo, São Sebastião, and Vila Atlântica (State of São Paulo); Foz do Iguassú (State of Paraná); Agudo, Bagé, C. Heitor, Itapoan, Ponta Grossa, and Sto. Angelo (State of Rio Grande do Sul)
- D. polymorpha*: Tucuman (Argentina); Piracununga and Vila Atlântica (State of São Paulo); Montes Claros (State of Minas Gerais)
- D. prosaltans*: Cantareira and Bertioga (State of São Paulo); Montes Claros (State of Minas Gerais)
- D. simulans*: Montes Claros (State of Minas Gerais)
- D. sturteventi*: Bertioga, Cantareira, and Vila Atlântica (State of São Paulo); Palma (State of Goiás); Palmares (Território do Acre); Imperatriz (State of Maranhão); Rio Negro (State of Amazonas); Belém and Ferreira Gomes (State of Pará); Floriano (State of Espírito Santo); Barreiras (State of Bahia); Boa Esperança, Montes Claros, and Rio Doce (State of Minas Gerais)
- D. tropicalis*: Montes Claros (State of Minas Gerais); Barreiras (State of Bahia); Floriano (State of Piauí); Rio Negro (State of Amazonas)
- D. virilis*: Argentina; Chile; State of Rio Grande do Sul
- D. willistoni*: Tucuman and Buenos Aires (Argentina), Melo (Uruguay); Sta. Cruz de la Sierra (Bolivia); Bagé and Chapada (State of Rio Grande do Sul); Vila Atlântica, Mogí das Cruzes, and Piracununga (State of São Paulo); Rio de Janeiro (Distrito Federal); Sooretama (State of Espírito Santo); Montes Claros and Governador Valadares (State of Minas Gerais);



Salvador, Catuni, and Barreiras (State of Bahia); Floriano (State of Piauí); Belém (State of Pará); Rio Negro and Carari (State of Amazonas)

D. willistoni: mutant--white  
mutant--vermilion--Piraçununga (State of São Paulo)  
mutant--hairless.

### FRANCE

Gif sur Yvette (S et O): Centre National de la Recherche Scientifique,  
Laboratoire de Génétique Evolutive

#### D. funebris

Wild type from Challuz  
Wild type from Chatenay-Malabry  
Wild type from St Mandé

#### D. simulans

Wild type from Dr. Haldane                      Mutant types: net Pm  
Wild type from Dr. Sturtevant                      se (?)  
Wild type from South Africa

Lyons: Faculté des Sciences, Laboratoire de Zoologie

D. busckii: wild Lyon  
D. funebris: wild Lyon

### GERMANY

Berlin-Buch: Institut für Medizin und Biologie, Genetische Abteilung

#### D. funebris

<u>Wild Stocks</u>	<u>Chromosome 1</u>	<u>Autosomes</u>
90 normal	92 ev	96 Pch
91 normal (Buch, 1947)	93 w	97 st
	94 y	
	95 yw	

#### Other Species

98 D. Busckii: wild	101 D. simulans: v
99 D. hydei: wild	102 D. virilis: wild
100 D. repleta: wild	

Berlin-Dahlen: Institut für Genetik der Freien Universität Berlin

D. busckii	D. hydei	D. simulans
D. funebris	D. repleta	D. virilis

Göttingen: Max-Planck-Gesellschaft, Institut für Tierzucht und TierernährungD. virilis

1 normal	5 va; gl
2 b; t; cd; es	6 y <sup>40a</sup>
3 b; tb gp; cd; pe; ac gl	7 y <sup>40a</sup> ; b; cd; es
4 b; tb gp; cd; pe	

Other Species

D. simulans: v  
 D. immigrans  
 D. pseudoobscura: A (Texas)

Göttingen: Zoologisches Institut der UniversitätD. funebrisFamily Drosophilidae

1 +	Zaprionus Ghesquièrei
2 M	Zaprionus vittiger
3 Pch	

Heidelberg: Universität Heidelberg, Zoologisches Institut

D. funebris: wild

GREAT BRITAINBayfordbury, Hertford, Herts, England: John Innes Horticultural Institution

D. funebris  
 D. simulans

Edinburgh, Scotland: University of Edinburgh, Institute of Animal Genetics

(All collected in Great Britain)

D. ambigua (2)	D. polychaeta
D. deflexa	D. silvestris (sp. nov. Basden)
D. hydei	D. subobscura (4)
D. littoralis	D. tristis
D. obscura	Parascaptomyza disticha

Harpenden, Herts, England: Rothamsted Experimental Station

D. simulans

London, England: University College, Department of BiometryD. subobscura

<u>Wild Stock</u>	<u>X Chromosome</u>	<u>v w/v w<sup>co</sup> sc</u>	<u>ct y<sup>2</sup></u>
+ KUSSNACHT	<u>Standard Order</u>	ct <sup>f</sup> rm be	Bx <sup>2</sup>
	c(X) cv sc	ct cv <sup>2</sup>	da oc (pf)

oc (fs)  
 v N<sup>5</sup> rr w<sup>co</sup> sc  
 ctan

sn v cv sc  
 ry v (ct)

m ct bnt v sc  
 pm ct sn cp

scl wi

bnz v cv

pm ct/ry ct

v w/v w<sup>co</sup> y wi

ct<sup>k</sup> (segregating for ?  
 In(X)1)

m ct sn cp v sc F<sub>x</sub> from 2

v w<sup>a</sup> sc/v w<sup>co</sup> sc

lz + +/+ w<sup>co</sup> sc

y

#### Inverted Order

bnz<sup>2</sup> v In(X)1 2

+ In(X)1 2

ct cp sn v In(X)1 2

ct cp sn v y In(X)1

#### Balbani Ring Chromosome

##### Standard Order

th ma

s:e

ma int

log th int  
 s th int ey wt  
 wn th int  
 sepia  
 s<sup>2</sup> (order unknown)

#### Inverted Order

s th ma int

ma mop

#### Chromosome 3

ho

r

nt

pf nt

pp; segregating for gs

#### Chromosome 4

pl pp op

pl pp pt

otp pp fs

pt<sup>c</sup>

sj pl pp fs

sj pl pp otp fs

#### Chromosome 5

ch cu for D1

ch for Ba

ch ar for Va

ch ax

ch kk  
 ant/ant<sup>m</sup>  
 ch for Ba and ix  
 + for Ba and rn  
 + for Ba and st

#### Chromosome 6

fro

#### Multichromosomal

ma: pl pp

ma: ch

#### Unplaced Autosomal Loci

cm

csp

Fh

pa

forked milani (ma int)

dk

wg

pointed-like

bt

gi

mu

#### Other Species

D. ambigua: Pallanza +

D. bifasciata: +

D. funebris: m w st

D. hydei: vg

D. obscura: Luntz +

D. simulans: Austin Texas +

st pe

y w

D. virilis: Pasadena +

ix<sup>B</sup>

Manchester, England: The University, Department of Botany

D. funebris

D. simulans

#### ISRAEL

Jerusalem: Hebrew University

D. hydei

D. simulans: Florida

Qiryat 'Anavim

D. subobscura: Kulsnacht

Qiryat 'Anavim



ITALYMilan: Università di Milano, Istituto di GeneticaD. simulansWild Stock

Aspra

Stocks selected for tumor manifestation

tu A	tu B 3
tu B 1	tu C
tu B 2	

Other Species

Aphiochaeta xanthina

Zaprionus vittiger

Pavia: Università, Istituto di Genetica  
 (Type Culture Collection of Drosophila Species)

D. acanthoptera (1 strain)	D. helvetica (1)	D. robusta (1)
D. affinis (1)	D. hydei (1)	D. setifemur (1)
D. algonquin (1)	D. immigrans (1)	D. simulans (2)
D. ambigua (2)	D. kuntzei (1)	D. spinofemora (1)
D. athabasca (1)	D. lativittata (1)	D. subbadia (1)
D. azteca (1)	D. lebanonensis (1)	D. subobscura
D. baeomyia (1)	D. littoralis (1)	Wild stock (1)
D. bifasciata	D. miranda (1)	Homozygous standard:
Wild stocks (2)	D. mirim (2)	Esperød
Mutants: f	D. montium (1)	Küssnacht
ob	D. narragansett (1)	D. testacea (1)
sex-ratio	D. nitens	D. transversa (1)
D. busckii (1)	Wild stocks (2)	D. tripunctata (1)
D. buzzatii (1)	Mutants: or	D. tristis (2)
D. cameraria (1)	y	D. victoria (1)
D. cardini (1)	D. obscura (2)	D. virilis (1)
D. dschabibi n.sp. Burla (1)	D. persimilis (1)	D. willistoni (1)
D. duncani (1)	D. prosaltans (1)	D. yakuba n.sp. Burla
D. funebris (1)	D. pseudoobscura (1)	(1)
D. gibberosa (1)	D. putrida (1)	Zaprionus vittiger (1)
D. guttifera (1)	D. repleta (1)	

JAPANAnjo: Nagoya University, Faculty of Agriculture

D. auraria (2 strains)	D. lutea (2)	D. sordidula (1)
D. hydei (1)	D. montium (1)	D. transversa (1)
D. immigrans (3)	D. rufa (1)	D. virilis (1)

Kyoto: Kyoto University, Zoological InstituteD. virilisWild Stocks

America (3 strains)  
 Japan (20)

Chromosome 1

1 bb  
 2 buff  
 3 cv mt w<sup>e</sup> sb

4 si<sup>16</sup>Chromosome 25 C<sup>21</sup>

<u>Chromosome 3</u>	<u>Chromosome 6</u>	27 w ds
6 cn	16 ac gl	<u>Inversion</u>
7 N-3a	17 Gp	
<u>Chromosome 4</u>	18 ski hp/Gp gl	28 In(X)Spd
8 cd	<u>Multichromosomal</u>	<u>Translocations</u>
9 px		
<u>Chromosome 5</u>	19 b bk dt	29 T(X;4)
10 B <sup>4</sup>	20 b ski	30 T(Y;3)
11 es pe	21 b t <sup>2</sup> cd ni	
12 Sb	22 cn px pe	
13 st	23 ds es pe	
14 st B <sup>3</sup> pe	24 px B <sup>3</sup> pe	
15 Sv po	25 px st B <sup>3</sup> pe	
	26 R gp es cd	

Other Species

D. americana (1 strain)	D. hydei (1)	D. novamexicana (1)
D. ananassae (1)	D. immigrans (1)	D. simulans (2)
D. auraria (1)	D. nigromaculata (1)	D. texana (1)

Misima, Sizuoka-Ken: National Institute of GeneticsD. virilis

<u>Wild Stocks</u>	<u>Chromosome 2</u>	<u>Chromosome 6</u>
1-4 wild types in Japan	10 eb	15 hp
<u>Chromosome 1</u>	<u>Chromosome 3</u>	<u>Multichromosomal</u>
5 sd	11 cn	16 N; R; tb; gp; cd; es
6 si <sup>16</sup>		17 si; b; t <sup>2</sup> ; cd; es
7 v <sup>4</sup>	<u>Chromosome 5</u>	18 v; bw
8 v <sup>4</sup> si <sup>16</sup>	12 es pe	19 v; es pe
9 y(ap)	13 Sb	
	14 st B <sup>3</sup> pe	

Other Species

D. ananassae: wild, 2 strains, Hawaii and Africa
D. auraria: wild, 1 strain, Japan
D. hydei: wild, 1 strain, Lebanon
D. immigrans: wild, 8 strains; mutants, 2, plex and sepia
D. lutea: wild, 2 strains, Japan
D. montium: wild, 1 strain, Japan
D. rufa: wild, 3 strains, Japan

Osaka: Osaka University, Faculty of Medicine, Department of GeneticsD. virilis

<u>Wild Stocks</u>	<u>Chromosome 1</u>	11 si <sup>16</sup>	15 y ap
1-3 wild types in America	8 cv mt w <sup>e</sup> sb	12 v <sup>4</sup>	16 y ap bb
4-7 wild types in Japan	9 mt Bx w	13 v <sup>4</sup> si <sup>16</sup>	17 y cv ap
	10 sd	14 w si <sup>16</sup>	

Chromosome 2

18 eb

19 ro

Chromosome 3

20 cn

Chromosome 4

21 px

22 cd

Chromosome 5

23 es pe

24 Sb

25 Sv po

26 st B<sup>3</sup> peChromosome 6

27 hp

28 ski hp/Gp gl

Multichromosomal29 si; b; t<sup>2</sup>; cd; es

30 N; R; tb; gp; cd; pe

31 R; tb; gp; cd; pe

32 v; es pe

33 v; st B<sup>3</sup> pe

34 cd; es

35 v; es

36 cn; es

Virilis Group

D. americana americana (1 strain)

D. americana texana (2)

D. novamexicana (1)

Other Species

D. auraria, race A (1 strain)

D. busckii (1)

D. ficusphila (1)

D. hydei (1)

D. lutea (1)

D. montium (1)

D. rufa (3 strains--dark, light &amp; white)

D. simulans (1)

Sapporo: Hokkaido University, Faculty of Science, Institute of ZoologyWild Stocks

D. auraria: Sapporo, Shioya, and Hanaishi

D. bifasciata: Sapporo and Asahidake

D. busckii: Furidera, Sapporo, Shioya, and Shikaribetsu

D. funebris: Sapporo, Shioya, Nakashibetsu, Chitose, and Imagane

D. hydei: Otaru

D. immigrans: Sapporo, Otaru, Shikaribetsu, and Samani

D. lutea: Sapporo

D. nigromaculata: Sapporo, Asahidake, and Rishiri

D. robusta: Sapporo, Asahidake, and Kushiro

D. sordidula: Sapporo

D. testacea: Asahidake and Imagane

D. transversa: Asakawa and Towada

D. virilis: Sapporo and Asahidake

Tokyo: Tokyo Metropolitan University, Department of BiologyD. ananassaeWild Stocks

1 Texas

2 TL<sub>1</sub>3 TL<sub>3</sub>4 TL<sub>4</sub>5 TL<sub>3-4</sub>6 TL<sub>3-11</sub>

7 Barro Collorado, Panama 55

(low elevation)

8 Barro Collorado, Panama 69

(low elevation)

9 Barro Collorado, Panama 74 (low elevation)

10 Turrialba, Costa Rica 101 (high elevation)

11 Turrialba, Costa Rica 104 (high elevation)

12 Turrialba, Costa Rica 116 (high elevation)

13 Turrialba, Costa Rica 125 (high elevation)

14 São Paulo

15 Mampa, Africa

16 Monterrey, Mexico

17 Christobal, Panama

18 Campus Oahu, Hawaii

19 Porto Rico



20 Baton Rouge, Louisiana	<u>Mutants</u>	40 bb
21 Hawaii-H		41 dpl e
22 2L-A <sup>L</sup>	31 cd f	42 y f
23 2L-A <sup>H</sup>	32 bw	43 cd cv-a
24 2L-B <sup>H</sup>	33 Bn	44 f cd bw ru <sub>ec</sub>
25 2 L-A <sup>M</sup>	34 ru	45 Bn-c
26 2L-A; 3L-A <sup>H</sup>	35 pxd	46 f cd bw ski
27 2L-A; 3L-B <sup>H</sup>	36 cd f ru <sup>2</sup>	47 Bn-c bw
28 2L-A; 3L-A <sup>M</sup>	37 cd f bw	
29 3L-A <sup>C104</sup>	38 y	
30 3L-B <sup>C104</sup>	39 f	

D. bifasciataWild Stocks

- 1 Akkeshi (3 strains)
- 2 Hoppo (1)
- 3 Hakkoda (3)
- 4 Asakawa (2)
- 5 Taisetsuzan (3)
- 6 Noppero (1)
- 7 Yatsugatake (2)
- 8 Kitazawatoge (1)
- 9 Oze (1)
- 10 Kumotoriyama (2)
- 11 Gōtokuji (2)

- 12 Meakan (1)
- 13 Nishitappu (1)
- 14 Switzerland, from Buzzati-Traverso's laboratory (1)
- 15 Pavia, Italy, from Buzzati-Traverso's laboratory (1)
- 16 From Mainx's laboratory (1)

Mutants

- 1 f (DIS-25: 94)
- 2 ob (DIS-25: 94)
- 3 or (DIS-25: 94)
- 4 cv (DIS-26: 87)
- 5 tr (DIS-26: 87)

Other Species

- D. ambigua: wild (1 strain)  
 D. americana americana: wild (1)  
 D. auraria: A-type, wild (9)  
                   B-type, wild (5)  
 D. bipectinata: wild (1)  
 D. bizonata: wild (1)  
 D. busckii: wild (5)  
 D. ficusphila: wild (1)  
 D. funebris: wild (3)  
 D. gibberosa: wild (1)  
 D. hayashii: wild (3)  
 D. helvetica: wild (1)  
 D. histrio: wild (1)  
 D. histrio-media: wild (2)  
 D. hydei: wild (5)  
 D. immigrans: wild (22)  
 D. immigrans group-I: wild (2)  
 D. lutea: wild (5)  
 D. melanissima: wild (1)  
 D. miranda: wild (1)  
 D. montium: wild (7)  
 D. nigromaculata: wild (5)  
 D. novamexicana: wild (1)

- D. obscuroides: wild (1)  
 D. persimilis: wild (1)  
 D. pseudoobscura: wild (2)  
                                   mutant (1)  
 D. repleta: wild (1)  
 D. robusta group-I: wild (2)  
 D. rufa: wild (5)  
 D. simulans: wild (1)  
 D. sordidula: wild (3)  
 D. subobscura: wild (1)  
 D. subtilis: wild (1)  
 D. suzukii: wild (3)  
 D. takahashii: wild (2)  
 D. takahashii-like: wild (2)  
 D. testacea: wild (5)  
 D. transversa: wild (3)  
 D. tristis: wild (1)  
 D. virgata: wild (1)  
 D. virilis: wild (7)  
                                   mutants (7)  
 D. willistoni: wild (1)  
                                   mutant (1)

SOUTH AFRICAJohannesburg: University of the Witwatersrand, Department of Zoology

- |                    |                    |                         |                    |
|--------------------|--------------------|-------------------------|--------------------|
| D. opisthomelaina: | Eastern Transvaal  | D. simulans:            | Johannesburg       |
|                    | Mkuzi Game Reserve |                         | West Rand          |
| D. persimilis:     | or                 |                         | Mkuzi Game Reserve |
| D. pseudoobscura:  | Aspen              |                         | Zoutpansberg       |
|                    | Texas              | Zaprionus tuberculatus: |                    |
|                    | tb b v se pp       |                         | Zoutpansberg       |
|                    | v                  | Z. vittiger:            | Witwatersrand      |
|                    | se                 |                         | Zoutpansberg       |

SPAINBarcelona: University of Barcelona, Centro de Genética Animal y Humana

- D. bifasciata (Pavia, Italy)
- D. busckii (Barcelona)
- D. buzzatii (Armentera, Spain)
- D. funebris (Several Spanish stocks)
- D. immigrans (Barcelona)
- D. mercatorum mercatorum (Barcelona)
- D. mercatorum pararepleta (Jijuca, Brazil)
- D. nitens (Peramola, Spain)
- D. phalerata (Several Spanish stocks)
- D. repleta (Barcelona)
- D. simulans (Barcelona, mutant stocks)
- D. subobscura (Several Spanish stocks, mutant stocks)
- D. testacea (Montnegre, Spain)
- D. transversa (Montnegre, Spain)
- Scaptomyza graminis (Barcelona)

## NEW MUTANTS

D. ambiguaReport of F. Mainx

ci: cubitus interruptus Karlik. Autosomal recessive. Cubitus more or less interrupted, second crossvein diagonal. Penetrance imperfect.

dl: delta Karlik. Autosomal recessive. An additional vein between the second crossvein and the fourth longitudinal vein. Penetrance imperfect.

pn: prune Karlik. Autosomal recessive. Eye color light brownish red, transparent on margins. Eye smaller than in wild-type, order of ommatidia disturbed. Viability good.

px: plexus venation Karlik. Recessive. Manifestation only in females. Many irregular additional veins over the whole wing. Viability good.

sb: subcosta Karlik. Autosomal recessive. One to three additional veins between costa and subcosta. Penetrance imperfect.

w: white Karlik. Sex-linked recessive. Eye color white. Eye larger than in wild-type, number of ommatidia enlarged. Viability and fertility very poor.

y: yellow Karlik. Sex-linked recessive. Body color yellowish brown, bristles brown, wings yellowish. Viability and fertility very good.

D. subobscuraReport of J. M. Clarke

plexus-like Clarke, 53h. One female in  $v w/v w^{co} y wi$ . Pupae failed to hatch. Phenotype of plexus.

white Clarke, 53h. Mutation of  $w^a$  to  $w$  in stock of  $v w^a sc/v w^{co} sc$ .

Report of M. J. Hollingsworth

cut-like Hollingsworth, 52k. Single male in  $ch$  for  $Ba$  and  $ix$ . Sterile. Phenotype of cut.

tuck Hollingsworth, 52k. Segregating in  $ch$  for  $Ba$  and  $ix$ . Impenetrant autosomal recessive. Wings curved downwards.

Report of J. Maynard Smith

ant<sup>m</sup>: antennapedia modifier Smith, 53c. An allelomorph of  $ant$ . The compound  $ant/ant^m$  has leg-like arista.  $ant^m/ant^m$  and  $ant^m/ar$  flies are wildtype.



D. tropicalisReport of J. Ives Townsend

w: white Smothers, 53g. Sex-linked recessive. Spontaneous in Cuban stock. Eye color white. Viability good.

## RESEARCH NOTES

Annan, Murvel E. Some lasting effects of X-rays on individual D. robusta females as measured by fecundity and fertility.

Ten- or seventeen-day-old virgin D. robusta females were exposed to either 5000 or 2500 r units of X-rays, or served as untreated controls. After treatment each female was placed in a vial with two untreated males.

Food strips were changed daily for 20 days and the eggs were counted and cultured. The data on fecundity (mean number of eggs laid per day per female) and fertility (percentage of eggs which became adult) are presented in the following table for 5-day periods. n = number of females in each group.

Days after treatment		0 - 5		6 - 10		11 - 15		16 - 20		
		n	Fecun- dity	Fer- tility	Fecun- dity	Fer- tility	Fecun- dity	Fer- tility	Fecun- dity	Fer- tility
Control	Old	9	10.6	16.2%	27.2	30.2%	35.3	31.5%	47.8	28.8%
	Young	10	11.4	23.3%	25.5	32.4%	43.6	31.9%	61.7	29.3%
2500 r	Old	10	8.4	1.1%	6.1	11.8%	18.7	25.2%	21.3	26.8%
	Young	10	9.2	1.1%	7.6	13.5%	17.6	25.1%	27.3	27.9%
5000 r	Old	5	0.8	0	2.9	0	0.8	0	1.2	0
	Young	10	8.3	0	1.4	0	0	0	0.1	0

In spite of the use of somewhat inbred stocks (minimum F value = .50), individual variation was high. The differences in fertility and fecundity associated with the age of the female at treatment are generally not significant. The 2500-r series had a higher fecundity than did the controls for the first 3 days. This initial increase in fecundity was followed by first a decrease and then a gradual increase. On the other hand, the fertility was quite low at first but increased to approximately the same level as that of the controls.

Examination of the flies on the 21st day showed that the ovaries of females receiving 5000 r had disintegrated, so that only a few (in some cases, none) of the egg strings remained. The ovaries of females receiving 2500 r seemed to have had the number of egg strings materially reduced, while the remaining egg strings appeared normal.

Barigozzi, C., Castiglioni, M. C., and Di Pasquale, A. Pseudotumors in D. melanogaster.

Ten spontaneous stocks carrying melanotic masses have been submitted to both phenogenetic and formal genetic investigation. A first approach to the histological

structure of the melanotic masses proved that there is no relation between them and the melanomas known in vertebrates; therefore the so-called melanotic tumors in *Drosophila* are referred to as pseudotumors. Two stocks have been more thoroughly analyzed, and show that factors located in the second chromosome, as well as modifiers in other chromosomes, are responsible for producing pseudotumors. This confirms the data of previous investigators. In all stocks there is great variation in incidence. Pseudotumors develop from clumps, which later melanize. The time of melanization varies with the stock, and ranges from the first instar larval stage to late third instar. Pseudotumors can be produced in pseudotumorless stocks by injecting hemolymph from pseudotumorous larvae. The rate of induction of pseudotumors is related to

the incidence in the stock donor of hemolymph. Incidence of pseudotumors appears to be influenced to a great extent by the general conditions of the cultures. Old cultures have a higher incidence.

Basden, E. B. Drosophilidae  
in Ireland.

An examination of specimens in the National Museum of Ireland, Dublin, and the conducting of a limited but widespread trapping

campaign showed the following eighteen species to be present in Ireland. Many of the Haliday specimens in the Museum have no dates, but the months of capture of other specimens are given in parentheses. D. subobscura Coll. and D. obscura Fall (v, vii-ix), D. tristis Fall (v, viii, ix), D. ambigua Pom. (viii), D. silvestris Basden n.sp. (v, viii, ix), D. helvetica Burla (viii, ix), D. deflexa Dud. (viii, ix), D. funebris (Fabr.), (vi-ix), D. melanogaster Mg. (viii, ix), D. phalerata Mg. (vii-ix), D. transversa Fall., D. littoralis Mg. (viii), D. cameraria Hal (viii), D. fenestrarum Fall., D. forcipata Coll. (vii), Scaptomyza graminum Fall. (i.e., the species with four rows acrostichals) (vii), S. apicalis Hardy, and Parascaptomyza disticha Duda (two rows acrostichals) (X). The specimen of D. ingrata Haliday bearing Haliday's original label is almost certainly D. subobscura with shortened hind tarsi.

Basden, E. B. Drosophilidae  
in Scotland.

Monthly occurrences of adult Drosophilidae in Scotland, and whether found indoors or outdoors, are presented in the accompanying

table. "Indoors" means inside any building (house, fruit store, glasshouse, animal shed, etc.) or transport vehicle, whether in the windows or elsewhere. "Outdoors" means outside buildings and transport vehicles. Additional records from published data and museum specimens are shown as X, as it is not always definite whether such flies were caught indoors or outdoors.

Most trapping and collecting was done in the Edinburgh district (95.5% of the total of 43,633 Scottish specimens being obtained there), and so the figures give some measure of the relative abundance of different species and of their seasonal abundance in that area. Some flies were collected from toadstools, sap exudates, and windows, or by sweeping, but the majority were trapped at fermenting fruits. Since the traps were usually exposed for a period of one week, some overlapped the end of one calendar month and the beginning of the next. In such cases the results were credited to the second month unless the day of collection was the first of a month, when they were credited to the former month.

Only D. subobscura and perhaps D. obscura can be expected outdoors every month of the year in Scotland, and only D. funebris indoors. The fewest species are found in January and February and the most species from July to September.

The composite table on the following pages shows: (a) The monthly occurrences indoors (I) and outdoors (O) and from previous records and specimens (X) for all Scotland. (b) Monthly totals of specimens trapped and collected (not reared) in the Edinburgh district only, March 1950 to August 31, 1952.



Species	Jan. 1951-52	Feb. 1951-52	Mar. 1950-52	April 1950-52	May 1950-52	June 1950-52
1 <i>D. subobscura</i> Coll.	0 243	0 968	0 691	0 980	0 523	I 0 1160
2 <i>D. obscura</i> Fall. (= <i>obscuroides</i> Pom.)	-	0 12 (0)	0 21	0 1692	0 6624	0 2152
3 <i>D. tristis</i> Fall.	-	-	0 4	0 76	0 573	0 64
4 <i>D. ambigua</i> Pom.	-	-	-	-	-	0 2
5 <i>D. silvestris</i> n.sp.	-	-	-	0 2	0 474	0 1292
6 <i>D. deflexa</i> Duda	-	-	-	-	-	0 5
7 <i>D. funebris</i> (Fabr.)	I 50	I 44	I 0 57	I 0 25	I 0 13	I 0 113 (0)
8 <i>D. busckii</i> Coq.	-	-	-	-	-	-
9 <i>D. melanogaster</i>	(I)* (2)*	-	-	-	-	I 0 6
10 <i>D. simulans</i> Sturt.	-	-	-	-	I 1	I 4
11 <i>D. ananassae</i> Dol.	-	-	-	-	-	-
12 <i>D. phalerata</i> Mg.	-	-	-	-	0 7	0 17
13 <i>D. transversa</i> Fall.	-	-	-	-	X	0 1
14 <i>D. cameraria</i> Hal.	-	0 9	0 4	0 1	0 2	-
15 <i>D. littoralis</i> Mg.	-	-	-	-	-	-
16 <i>D. immigrans</i> Sturt.	-	-	-	I 1	-	-
17 <i>D. hydei</i> Sturt.	-	-	-	-	-	-
18 <i>D. forcipata</i> Coll.	-	-	X	X	I 0 2	-
19 <i>D. fenestrarum</i> Fall.	-	-	-	X	X	X
20 <i>Scaptomyza apicalis</i> Hardy	-	-	-	X	X	I #(0) 1
21 <i>S. graminum</i> (Fall.)	-	-	X	X	I 0 2	I 2
22 <i>S. trochanterata</i> Coll.	-	-	-	-	X	-
23 <i>S. ?montana</i> Wheel.	-	-	-	-	-	-
24 <i>S. griseola</i> (Zett.)	-	-	-	-	-	-
25 <i>Parascaptomyza disticha</i> (Duda)	-	0 1	0 2	-	I 1	I 2
26 <i>Chymomyza costata</i> (Zett.)	-	-	-	-	-	X
27 <i>C. distincta</i> Egg.	-	-	-	-	-	-
28 <i>Amiota alboguttata</i> (Wahl.)	-	-	-	0 1	0 19	0 6
29 Species indet.	-	-	-	-	-	-

\*Trap out from Dec. 19 until Jan. 3. \*\*Larvae in Aug., adults emerged in laboratory in Sept. #Larvae May 26, adults emerged in laboratory in June.

July 1950-52	Aug. 1950-52	Sept. 1950-51	Oct. 1950-51	Nov. 1950-51	Dec. 1950-51	Total for Edinburgh district	
I <sup>0</sup> 1817	I <sup>0</sup> 2445	I <sup>0</sup> 209	I <sup>0</sup> 612	I <sup>0</sup> 3530	I <sup>0</sup> 2022	15,200	1
I <sup>0</sup> 3237	I <sup>0</sup> 1966	I <sup>0</sup> 34	I <sup>0</sup> 71	I <sup>0</sup> 148	I <sup>0</sup> 19	14,976	2
I <sup>0</sup> 47	I <sup>0</sup> 65	I <sup>0</sup> 3	I <sup>0</sup> 3	I <sup>0</sup> 52	I <sup>0</sup> 8	905	3
I <sup>0</sup> 7	I <sup>0</sup> 4	I <sup>0</sup> 0	-	(I) <sup>0</sup> 3	I <sup>0</sup> 2	18	4
I <sup>0</sup> 1141	I <sup>0</sup> 188	I <sup>0</sup> 375	I <sup>0</sup> 935	I <sup>0</sup> 98	I <sup>0</sup> 1	4,506	5
I <sup>0</sup> 40	I <sup>0</sup> 35	I <sup>0</sup> 7	I <sup>0</sup> 1	-	-	88	6
I <sup>0</sup> 468	I <sup>0</sup> 507	I <sup>0</sup> 12	I <sup>0</sup> 363	I <sup>0</sup> 470	I <sup>0</sup> 97	2,219	7
I <sup>0</sup> 11	I <sup>0</sup> 48	I <sup>0</sup> 1	I <sup>0</sup> 5	-	-	65	8
I <sup>0</sup> 133	I <sup>0</sup> 183	I <sup>0</sup> 23	I <sup>0</sup> 404	I <sup>0</sup> 559	I <sup>0</sup> 36	1,346	9
I <sup>0</sup> 190	I <sup>0</sup> 113	(I) <sup>0</sup> 1	I <sup>0</sup> 2	I <sup>0</sup> 5	-	316	10
I <sup>0</sup> 1	I <sup>0</sup> 6	-	-	-	-	7	11
I <sup>0</sup> 89	I <sup>0</sup> 199	I <sup>0</sup> 41	I <sup>0</sup> 34	I <sup>0</sup> 19	I <sup>0</sup> 1	407	12
I <sup>0</sup> 3	I <sup>0</sup> 5	I <sup>0</sup> 2	I <sup>0</sup> 1	I <sup>0</sup> 2	-	14	13
I <sup>0</sup> 4	I <sup>0</sup> 9	X	(0)	I <sup>0</sup> 1	I <sup>0</sup> 4	34	14
-	-	(0) <sup>**</sup> 4	-	-	-	4	15
I <sup>0</sup> 6	I <sup>0</sup> 11	I <sup>0</sup> 10	I <sup>0</sup> 97	I <sup>0</sup> 258	I <sup>0</sup> 17	400	16
-	I <sup>0</sup> 5	I <sup>0</sup> -	-	I <sup>0</sup> 3	I <sup>0</sup> 3	11	17
I <sup>0</sup> 1	I <sup>0</sup> 3	I <sup>0</sup> 1	-	-	-	7	18
X	-	-	-	-	-	-	19
I <sup>0</sup> 4	I <sup>0</sup> 3	X	-	-	-	8	20
I <sup>0</sup> 10	I <sup>0</sup> 4	X	I <sup>0</sup> 1	-	I <sup>0</sup> 1	20	21
X	-	-	-	-	-	-	22
X	I <sup>0</sup> 11('53)	I <sup>0</sup> 12('53)	-	-	-	23	23
X	-	-	-	-	-	-	24
I <sup>0</sup> 1	I <sup>0</sup> 9	I <sup>0</sup> 5	-	-	I <sup>0</sup> 1	22	25
I <sup>0</sup> 1	I <sup>0</sup> 0	I <sup>0</sup> 0	-	-	-	1	26
-	-	X	-	-	-	-	27
I <sup>0</sup> 3	I <sup>0</sup> 134	(0)	-	-	-	163	28
						929	29

I or 0 in parentheses ( ) shows that the species was not found in that month but is very likely to be, as it occurred either at the end of the preceding or at the beginning of the following month.

Basden, E. B. The vertical distribution of *Drosophili-dae* in Scottish woodlands.

Traps of apple were placed at different heights in four deciduous trees and at their bases over a thirteen-month period. (See Technical Note.) Examination of the thousands of flies caught has not been completed, but preliminary generalizations can be made. When the trees were bare most flies were caught on the ground, but when the trees were in leaf the great majority of flies were caught in the upper part (30-54 feet up) of three mature trees. In the case of one younger tree in a narrow wood-belt of uniform height (40-50 feet), however, most flies occurred always (as far as have been examined) in the ground-level traps. Traps were also placed in a 65-foot conifer prior to leaf-fall of the deciduous trees, and these showed that *Drosophila* remained in this sheltered crown when they had long forsaken the bare crowns of the latter. Except for *Amiota alboguttata* (Wahl.), which was not trapped below 27 feet, all the commoner tree-haunting species (mostly of the *obscura* group) occurred at all levels. There was a definite indication that the two sexes sometimes occurred in different proportions at different heights in the same tree.

Bastock, Margaret The role of wing display in the courtship of *D. melanogaster*.

In *D. melanogaster*, males whose wings have been removed are much less successful in courtship than are normal males. In experiments in which five males were exposed to ten females for two hours (after ageing), there were found to be 70% fertilized females if the males were normal and 32% if the males were wingless. Comparable figures were obtained when the experiments were performed in the dark: 76% for normal males and 28% for wingless. This suggests that females are strongly stimulated by the wing display of the males, but that the relevant stimulus is not a visual one. However, if the antennae of the females are removed there ceases to be a significant difference in the mating success of these two types of male. Experiments run concurrently with those above gave 39% success for winged and 44% for wingless males in the light, the figures in the dark being 31% and 22% respectively. Thus the important stimulating elements of the wing display are received by the antennae of the females, although it has not been determined whether they are olfactory or auditory in nature.

Yellow males, which have been shown by analysis to have a lower proportion of wing display in their courtship than wild males, nevertheless are still less successful than wild males in fertilizing wild females, even when the latter lack antennae. Therefore the wing display is probably not the only stimulating factor of the courtship, and the yellow males must be deficient in at least one other factor not perceived by the antennae. Since they also show a lower proportion of licking, this seems a likely possibility.

Bender, M. A. An aberrant class of males in the  $F_1$  progeny of  $X^{Cy}/M-5$  females.

In crosses of heterozygous ring-X females reported by previous workers, the progeny included patroclinous males, in addition to the normal classes. The frequency of these patroclinous males is reported to increase with increasing doses of irradiation. In the cross  $X^{Cy}/M-5$  females by  $M-5$  males, an unexpected class of males appears. In this cross patroclinous males would not be detectable. The new class of males shows the scute bristle effects associated with the Muller-5 chromosome, but does not show  $y$ ,  $w^a$ , or  $B$ . The frequency of these "+" males, in an  $F_1$  progeny of 21,129 flies, was 3.4%, whereas the reciprocal class of  $y w^a B$  males did not occur. Irradiation of the female parent did not increase the frequency of either class. Out of 24 "+" males tested, all proved perfectly fertile. Crossover data indicate that all the "+" males tested carry a



rod-X. Preliminary cytological examination also indicates that a rod-X occurs in these flies. In the cross  $y/y$  females by "+" males, no yellow females are found in the  $F_1$ . In view of these data, it seems likely that the rod-X carried by the "+" males must be derived from the  $X^c y$  chromosome, with a portion which includes  $y^+$  derived from the M-5 chromosome. Studies are now under way to determine the exact nature and origin of this aberrant class of flies.

Braver, G. A method for determining the existence of chromatid interference in D. melanogaster.

An ordinary crossover experiment gives information about three kinds of crossover classes: the noncrossovers, the singles, and the doubles (the triples and quadruples being relatively rare). From these values it is

possible to estimate the frequencies of no-, one-, and two-exchange tetrads. Within the two-exchange class, there are 2-, 3-, and 4-strand doubles. Radical deviations from the commonly accepted 1:2:1 ratio of these three types may, to some extent, be excluded (Weinstein), but the most probable ratio of the three types in any experiment cannot be determined directly from the data.

In crossover runs involving heteromorphic homologues where there is nonrandom disjunction, there are not three but six classes: the noncrossover, single, and double crossovers recovered as the shorter and as the longer homologue. Since these classes receive disproportionate contributions from the three kinds of double exchanges, and only one--the three-strand double--produces heteromorphic dyads, it seems conceivable that the assumption of a 1:2:1 ratio would not fit the data but that some other ratio (indicating chromatid interference) would be more appropriate. The equations to be used for this analysis are those given in nonrandom disjunction in *Drosophila* (Genetics, 1951, p. 274). Since in these equations chromatid interference is assumed to be absent, one would expect to get inconsistent values for  $\underline{c}$  (the coefficient of nonrandomness) from the different equations if chromatid interference were in fact present. In this case, revised equations not assuming the 1:2:1 ratio but retaining the unknowns  $E_2-2s$ ,  $E_2-3s$ , and  $E_2-4s$  could be used to determine the frequencies of those types.

This approach involves the assumption that nonrandomness is manifest only in the single and three-strand double exchanges, and that it has the same value in both cases. Consequently, deviations from the 1:2:1 expectation might be interpreted as an indication, not of chromatid interference, but that nonrandom disjunction is operating in some way distinctly different from that described in the above-named reference.

Nonrandom disjunction has been tested in parallel runs of  $In(1) sc^8 / In(1) sc^4 sc^8$  females, in which one set carried  $In(1)AB$  on the  $sc^4 sc^8$  chromosome, substantially eliminating double crossovers (23 recovered in a total of 33,994). Values of  $\underline{c}$  were calculated for the female progeny, from the none, single, and double crossover strands recovered in the  $y^{3ld} sc^8 f cv wa sc^8 / y sc^4 v sc^8$  experiment ( $N = 17,026$ ), and from the none and single crossover strands recovered in the  $y^{3ld} sc^8 f v cv wa sc^8 / y sc^4 AB sc^8$  experiment ( $N = 33,994$ ). For the cross without  $In(1)AB$ , values of  $\underline{c}$  were .727, .668, and .762 from no-, single-, and double-exchange tetrads, respectively. For the cross with  $In(1)AB$ , corresponding values were .733 and .672 ( $\underline{c}$  was not calculated for the infrequent double exchanges).

Whether the inconsistencies in the  $\underline{c}$  values arise from chromatid interference, or from some extraneous factors like viability effects or inconsistent behavior of the different types of tetrads with respect to nonrandomness, remains to be determined.

Braver, G. Phenotypic detection of heterozygosity for  $w^a$  in  $v/v$ .

Among progeny from a cross of  $y w^a/y cv v f$  females to  $y cv v f$  males, the  $v$  females appeared to be of two types. One type appeared to be of normal  $v$  phenotype, while the other was off-shade, appearing slightly more orange. The distribution of mutants in these females indicated that the diluted  $v$  might be due to the presence of one dose of  $w^a$ . Crosses of both kinds of females to appropriate males indicated that this was the case (the  $v$  females were  $v w^+/v w^+$ ; the off-shade females were  $v w^+/v w^a$ ).

Brun, G. Existence of  $CO_2$ -sensitivity virus in natural populations of D. melanogaster.

Heretofore,  $CO_2$ -sensitivity virus had been found in a single laboratory stock of flies carrying the gene ebony. Recently several strains bred from individuals captured in different parts of France and in Rothamsted (England) were tested for  $CO_2$ -sensitivity. About one-third of them were found to harbor the virus, which accordingly is able to maintain itself in the wild.

Burdette, Walter J. Effect of defective ring gland on tumor incidence.

It is reasonable to suppose that humoral factors controlling the growth of larvae may also affect the development of tumor cells, since tumors usually arise in *Drosophila* during the larval stage. Any interference with metamorphosis may therefore alter the incidence of tumors, the growth of which may well be limited because of the holometabolous nature of the animal in which they occur. This was tested by comparing the incidence of tumors in  $tu^{wps}$  and  $se$   $tu^{49h}$  tumor stocks, with the  $1(2)gl$  gene heterozygous, to those with the  $1(2)gl$  gene homozygous. The results given in the table below indicate that tumor incidence in both tumor stocks was higher for giant larvae than for their heterozygous siblings.

Tumor strain	Homozygous $1(2)gl$			Heterozygous $1(2)gl$		
	Tumor-bearing	Population	Percentage tumors	Tumor-bearing	Population	Percentage tumors
$tu^{wps}$	135	550	24.5	58	2630	2.3
$tu^{49h}$	174	526	33.0	8	1668	0.5

Burla, H. What is called D. monitium today is not identical with the type specimen.

D. monitium is maintained in genetics laboratories, and studied cytologically and otherwise by various workers. It now proves to be different from the true D. monitium as described by de Meijere, the type specimen of which was kindly lent for comparison by the Zoological Museum of Amsterdam. There are some marked differences in characteristics of the external morphology, and the male genital apparatus is different in important details, in spite of similar general features that indicate close relationship. The laboratory species will be given a new name.

Another species erroneously called D. montium occurs in Africa. It is different from both the above-mentioned species, as well as from D. auraria,



which it resembles most, but is the same as D. séguyi Smart = D. subobscura Seguy.

A sex-limited polymorphism--viz., dark and light females--occurs, differently expressed, in the laboratory species from Brazil, in D. séguyi, and in D. auraria, but has not been found in the oriental form of the laboratory species. Studies with samples of different geographical origin of each of the three species showed the existence of geographical variation in characteristics of the genital apparatus.

Cross experiments between D. séguyi, D. auraria, and the laboratory species were wholly negative.

Castiglioni, M. C. Paper chromatography for fluorescent substances in D. melanogaster.

Paper chromatography for fluorescent substances has been applied to the study of the eye pigments in the following genotypes of D. melanogaster:  $w/w$ ;  $w^i/w^i$ ;  $w^{bf}/w^{bf}$ ;  $w^a/w^a$ ;  $w^{bl}/w^{bl}$ ;  $w^e/w^e$ ;  $w^+/w^+$ ;  $w^i/w$ ;  $w^{bf}/w$ ;  $w^a/w$ ;  $w^{bl}/w$ ;  $w^e/w$ ;  $w^+/w$ ;  $w^{bf}/w^i$ ;  $w^a/w^i$ ;  $w^{bl}/w^i$ ;  $w^e/w^i$ ; and  $w^+/w^i$ . A remarkable correspondence has been found between amount of pigment granules (on histological sections) and intensity of fluorescence. Heterozygotes are clearly intermediate for intensity of fluorescence between the homozygotes from which they derive. Analysis of the chromatograms has so far been only qualitative.

Di Paolo, Joseph A. Test for mutagenic action of desoxypyridoxine.

Hans Selye has pointed out that desoxypyridoxine belongs to a group of compounds known collectively as pressor amines or stressor compounds. Five other compounds of this series capable of initiating the General Alarm Syndrome have been shown to have definite mutagenic results. Desoxypyridoxine, however, does not continue the parallelism of being a stressor and mutagenic agent under the conditions tested. Adult, wild Oregon males were injected intra-abdominally with sublethal doses of desoxypyridoxine ( $5 \times 10^{-3}$  M in 0.7% saline) and the sex-linked recessive lethals were determined by the Muller-5 technique.

<u>Compound Tested</u>	<u>No. Chromosomes Tested</u>	<u>No. Lethals</u>	<u>% Lethals</u>
Desoxypyridoxine	997	1	0.1%
Desoxypyridoxine + cold shock	600	2	0.3%

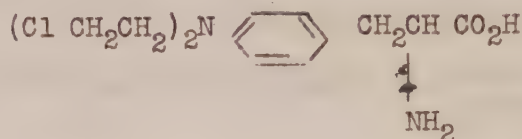
Dresden, D. and Oppenoorth, F. J. Some properties of a gamma HCCH-resistant strain,

Further experiments were carried out with the gamma HCCH-resistant strain mentioned in DIS-26. The resistant and susceptible flies proved to be significantly different upon injection of gamma HCCH - peanut oil emulsions. This difference was not caused by a difference in size. An attempt was made to evaluate the dominant and semidominant effects of the individual chromosomes. This was made possible by an adequate use of the test strain  $y; bw; e; ci.ey^R$ . By comparing the susceptibility of flies with a number of chromosomes from either the susceptible or the resistant strain, the role of the different chromosomes could be traced. It appeared that none of the chromosomes was responsible for the whole resistance. Owing to the fact that the level of resistance is rather low, it was not possible to determine how much each chromosome contributes to it. Only a significant effect of the second could be shown.



Fahmy, M. J., and Fahmy,  
O. G. Chemical mutagenesis in D. melanogaster.

Investigation of the mutagenicity of a new series of chemical inhibitors of the rat Walker tumor has been started. This series consists of aromatic nitrogen mustards derived from amino acids and various low-molecular-weight peptides. The first compound tested is a mustard derivative of phenylalanine, p-di-(2-chloroethyl)-amino-phenylalanine:



Three concentrations of the sodium salt of the compound were dissolved in isotonic saline and injected into the haemocoel of two-day-old Oregon-K males. The rates of induction of recessive lethals were determined by the Muller-5 technique, and are shown in table 1.

Table 1

Conc. (%)	Survival after injection (days)	Chromosomes tested	No. of lethals	% lethals
0.17	< 13	1793	35	2.0
0.25	< 9	1147	20	1.6
0.5	< 7	885	78	8.8

Unlike most of the alkylating mutagens so far tested in our laboratory, this compound does not show a consistent increase of mutagenic activity with increased concentration. It must be noted, however, that this compound has a very marked delayed toxicity effect on *Drosophila*, which increases with concentration. The lack of correlation between mutagenicity and concentration could easily be the outcome of toxicity complications.

Lethals induced by the above compound and four other alkylating mutagens have been tested against 63 known "visible" mutations of the X chromosome, in an attempt to determine the frequency with which these loci are being eliminated by different agents (table 2).

Table 2

Compound	No. of lethals tested	Markers involved in deficiencies	
		No.	%
2:4:6-tri(ethyleneimino)- 1:3:5-triazine	398	64	16.1
1:2,3:4-diepoxybutane	89	9	10.1
1:4-dimethanesulphonoxybutane-2-yne	69	12	17.4
<u>p</u> -di-(2-chloroethyl)-amino- phenylalanine	131	8	6.1
<u>NN</u> -di-(2-chloroethyl)- <u>p</u> -amino phenyl butyric acid	50	3	6.0

The number of lethals tested is not yet sufficient to permit any definite conclusions about distribution, except perhaps for the triazine. The data suggest that the X loci most frequently affected by the triazine are the same as those which respond most frequently to X-radiation.

Fahmy, O. G., and Fahmy, M. J. The effect of dose on mutagenicity and chromosome breakage induced by 2:4:6-tri(ethyleneimino)-1:3L5 triazine.

The triazine is one of the strongest chemical mutagens for *Drosophila*. A concentration of the compound as low as  $4.0 \times 10^{-4}$  M (.008%) injected into adult Oregon-K males, induced a sex-linked recessive lethal rate of 18%, equivalent to an X-ray dose of 6000 r. Moreover, injection experiments using the same

molar concentration on males of comparable size and age yielded almost equal mutation rates. It appeared, therefore, that the injection technique was sufficiently consistent with the triazine to justify the investigation of the effect of the variation of dose on mutagenicity and chromosome breakage. It has been possible to establish that the total lethal rate increases linearly with dose, and that lethals with major chromosome rearrangements increase more than linearly, and those without increase less. These relationships are qualitatively similar to that which has been established for X-radiation. Quantitatively, however, the proportion of lethals with major rearrangements at any mutagenic level is higher for X-rays than for the triazine.

An analysis has also been undertaken of the variation in frequency of major chromosome rearrangements as determined in the salivaries of the  $F_1$  larvae. About 200 wild-type Oregon-K males were injected with each of the tested concentrations, and half of them were subjected to the Muller-5 test for determination of the rate of sex-linked recessive lethals and the other half mated to wild-type females for cytological analysis. Only the X chromosomes in the salivaries of the  $F_1$  female larvae were analyzed. For each concentration 200-300 X chromosomes were observed. The results, interpreted in terms of X-chromosome breaks, are summarized in the table.

Breakage frequency in the X chromosome in relation to dose

Dose (Molar Conc. $\times 10^{-4}$ )	1.0	1.5	2.0	3.0	4.5
Lethals (%)	3.6	6.6	9.4	12.8	19.6
Breaks (%): effective	2.1	7.7	9.9	12.4	22.1
potential	3.4	11.8	15.6	15.9	23.3
total	5.5	19.5	25.5	28.3	45.4

It was soon realized that the frequency of mosaic rearrangements was extremely high, compared with those induced by mutagenically equivalent doses of X-rays. Care was taken, therefore, to confine observation to preparations of larval salivaries showing a large number of analyzable nuclei. Breaks that are involved in mosaic (fractional) rearrangements are scored as "potential," to distinguish them from "effective" breaks that give rise to rearrangements in all cells of the gland. The frequency of effective breaks in the X chromosome is slightly lower than that induced by mutagenically equivalent doses of X-rays. But if potential breaks are taken into consideration, the total breakage frequency induced by the triazine is significantly higher than that induced by X-rays. Chromosome breaks induced by the triazine, like those induced by X-rays, seem to increase more than linearly with dose. The full data and a more extensive analysis of the mechanism of chromosome breakage under the effect of triazine will be published elsewhere.



Freire-Maia, A., and  
Freire-Maia, N. Mating  
preference in D. ananassae.

Experiments on the sexual activity of two strains of D. ananassae, one from Recife (in the northern state of Pernambuco) and the other from Passagem (in the southern state of Paraná), the first being the same as that already used in another test (see DIS-26, pp. 99-100), revealed that the Passagem flies were sexually more active ("sexual activity index" = 2.35), showing a highly significant tendency to copulate within the same strain. The sexually less active strain (Recife), with an SAI of 0.92, nevertheless showed a clear tendency (although significant only for the females) to copulate with the Passagem flies. This behavior is similar to the phenomenon named "one-sided mating preference" by Dobzhansky. As the previously published data were obtained with flies from the same localities and presented quite different results, it seems that there is a marked variation within a population regarding sexual activity.

Freire-Maia, N. Frequencies  
of the two color forms of  
the Brazilian D. montium in  
natural populations.

Natural populations of D. montium from Brazil and Hawaii are polymorphic with regard to color and pattern of abdominal tergites. Two genetically pure forms (a light and a dark one) have been isolated, the gene for the dark pigmentation being dominant over its allele for the light one. Besides this polymorphism, D. montium presents also a sexual dimorphism, the effects of the gene for the dark form being much more apparent in the females than in the males, where an overlapping of the phenotypes has been discovered. For this reason, in order to obtain accurate information about the frequencies of the two alleles in natural populations as well as in artificial populations maintained in the laboratory, only the females have been analyzed. In the latter, the three genotypes were always present with frequencies in accordance with the Hardy-Weinberg formula.

The following table summarizes the data we have obtained from 1947 up to now, regarding the frequencies of the two color forms of D. montium in some Brazilian populations, from the hinterland to the southern coastal regions. In many localities, as in Salvador and Ilhéus in the state of Bahia, Cuiabá in the state of Mato Grosso, Boa Esperança and Uberlândia in the state of Minas Gerais, etc., the species has not been found at all.

Interestingly enough, the total sample from Paranaguá presents a quite different composition from those of Morretes and Antonina, although they are neighboring towns. The samples from the southern localities taken together (Paranaguá, Itajaí, Gaspar, Florianópolis, and Porto Alegre) also show a genetic structure different from those collected in the other localities. The chi-squares calculated for the two comparisons are highly significant; 20.79 for the first and 30.06 for the second.

(see next page for table)



Localities	Time of collection	Females			Light females (%)
		Light	Dark	Total	
Goiania, Go	September, 1953	21	4	25	84.00
Belo Horizonte, MG	September, 1953	21	5	26	80.77
Sao Paulo, SP	June, 1947	127	41	168	75.60
Sao Paulo, SP	March, 1949	63	10	73	86.30
Sao Paulo, SP	June-July, 1949	40	6	46	86.96
Antonina, Pr	November, 1951	18	4	22	81.82
Antonina, Pr	March, 1952	3	0	3	100.00
Morresteres, Pr	March, 1947	31	2	33	93.94
Morresteres, Pr	May-June-July, 1951	15	1	16	93.75
Morresteres, Pr	September, 1951	28	6	34	82.35
Morresteres, Pr	Oct.-Nov.-Dec., 1951	27	7	34	79.41
Morresteres, Pr	March, 1952	5	0	5	100.00
Morresteres, Pr	August, 1953	17	5	22	77.27
Morresteres, Pr	October, 1953	16	2	18	88.89
Paranaguá, Pr	March, 1952	8	5	13	61.54
Paranaguá, Pr	September, 1952	99	49	148	66.89
Paranaguá, Pr	October, 1953	6	7	13	46.15
Itajaí, SC	June, 1952-1953	4	5	9	44.44
Gaspar, SC	June, 1952	6	8	14	42.86
Florianópolis, SC	November, 1952	1	1	2	50.00
Porto Alegre, RGS	March, 1952	5	0	5	100.00
TOTAL		561	168	729	76.95

Freire-Maia, N. New data on the incidence of pericentric inversions in Brazilian populations of D. ananassae.

Besides the three pericentric inversions previously found in some Brazilian populations of D. ananassae and already reported in DIS-26 (pp. 100-101) we have discovered two new ones in other localities. The

present situation may be summarized as follows:

Localities	Region	Number of individuals examined	Time of collection	Pericentric inversions	No. of times
Passagem, Pr	South	54	June, 1951	A	1
Recife, Pe	North	35	July, 1951	B	1
Antonina, Pr	South	62	March, 1952	C	2
Antonina, Pr	South	25	November, 1951	-	0
Paranaguá, Pr	South	67	September, 1952	D	1
Paranaguá, Pr	South	46	March, 1952	-	0
Uberlândia, MG	Center	29	March, 1953	E	1
Others	North, Center, and South	611	---	-	0
		929		5	6 (0.65%)

Inversions A, B, C, and E are located in the 3rd chromosome, and inversion D in the 2nd chromosome. It is interesting to note that the number of pericen-

tric inversions found in D. ananassae is higher than that detected in the natural populations of all the other *Drosophila* species taken together.

Frisch, Rose E. An attempt to modify the phenotype of mutant *Drosophila* larvae by feeding wild-type pupae and specific chemicals.

*Drosophila* larvae of mutant stocks vestigial, aristapedia, lethal giant, Glued, and Bar were fed crude preparations of wild-type pupae in an attempt to modify the phenotype of the mutant adults toward the wild type, as had been done for the eye-

pigment mutants *v* bw and *cn* bw by Beadle and Law (Proc. Soc. Exp. Biol. & Med. 57, 1938). A total of 902 larvae of varying ages were fed different types of crude preparations of wild-type pupae; 458 (51%) survived. The results were negative.

In a second group of experiments a total of 2259 larvae of mutant stocks Bar, Glued, and eyeless<sup>2</sup>, and of L-S wild type were fed specific chemicals: hydantoin, histamine dihydrochloride, histamine diphosphate, uric acid, urea, 4-ketoamyltriethyl ammonium iodide and 4-ketoamyltrimethyl ammonium iodide, and tryptophane. The first three of these substances, particularly hydantoin, had been listed by Khouvine, Chevais, and Gregoire (C. R. Acad. Sci. Paris 217, 1943) as being active in increasing facet number when fed or injected into Bar larvae. The larvae were exposed to a range of concentrations of the chemicals and at varying ages. Flies were checked only for large changes in facet number, that is, 50 or more facets. None of the substances tested had any effect on the facet number of the adult flies, with the possible exception of 4-ketoamyltriethyl ammonium iodide, which gave four Bar males with greatly increased facet number (2 times normal) out of the 83 (35%) which survived the feedings. This effect could not be reproduced. (In general, yeast in the medium with the chemicals being fed caused great variability in the results and in their reproducibility.) The failure of hydantoin, histamine dihydrochloride, and histamine diphosphate to increase facet number was inexplicable. It may be that different stocks of Bar vary in their reaction to these substances.

In the course of the experiments with the pupae and chemicals it was noted that there was a marked reduction of facet number in Bar (10 ♀ - 25 ♂ facets instead of the 70 ♀ - 90 ♂ of normal Bar flies) when the larvae had been starved. In addition there was often a marked division of the facets into anterior and posterior lobes, with pigmented but unfaceted areas between and around the lobes. The eyes of Glued flies starved as larvae also were reduced in size from one-half to two-thirds normal, and were flattened and glassy looking. They showed pigmented but unfaceted areas irregularly spaced in the eye.

It has been pointed out (Steinberg, Genetics 26, 1941, and Chevais, Bull. Biol. de la France et de la Belgique 77, 1943) that the changes in facet number which accompany the feeding of *Galliphora* extract or changes in temperature during a critical period in Bar are most probably due to a change in the labile determination of some of the cells of the eye disc from head hypoderm to facet, or from facet to head hypoderm (as when there is a reduction in facet number with increase in temperature). It is an interesting possibility that starvation of the larvae at a critical period also might change the destiny of some of these indeterminate cells of the eye disc from facet to hypoderm.



Fujii, S., Kawabe, M.,  
Okuda, Y., Kimoto, Y.,  
and Kanehisa, T. Decrease  
of facet number in Bar  
eyes by chemicals.

An attempt was made to decrease the facet  
number of Bar eyes in *D. melanogaster* by add-  
ing various chemicals to the culture medium  
(meal, 50 g; sugar, 20 g; agar, 5 g; water,  
400 cc). The results are shown in the follow-  
ing table. From this it seems that acrifla-  
vine, scarlet, and butter yellow reduce the facet number of Bar eyes, and  
that boric acid, phloroglucinol, and Sudan III reduce them in some degree.

Chemicals	Concen- tration	Obs. No.	♀♀			Obs. No.	♂♂		
			Facet number				Facet number		
			Min.	Max.	Mean		Min.	Max.	Mean
Control		10	34	45	39.2	10	40	69	53.6
Formalin	0.08 %	20	22	35	28.4	20	26	49	38.5
Control		9	32	47	40.2	10	35	61	45.2
Dinitrophenol	1/5,000 M	9	31	49	40.4	3	43	51	45.6
	1/10,000 M	10	23	39	30.3	9	38	55	44.2
	1/50,000 M	20	19	40	30.9	19	25	75	49.7
Control		17	25	79	55.2	17	45	105	75.2
Phloroglucinol	0.2 %	3	51	56	53.3	6	64	74	70.6
	0.1 %	6	30	46	36.3	12	49	78	60.6
Hydroquinone	0.2 %	15	49	68	54.6	8	60	73	68.4
Phenol	0.2 %	6	36	62	49.5	8	64	76	70.2
	0.1 %	15	35	67	45.9	10	64	102	82.7
Control		9	53	87	64.4	6	60	85	74.5
Acriflavine	0.01 %	10	39	50	42.7	11	35	66	50.3
Scarlet	0.5 *	4	35	39	37.0	11	51	96	70.2
	0.3 *	3	37	42	39.3	10	44	87	60.7
	0.1 *	10	37	55	45.4	10	26	55	45.4
Control		20	46	103	65.1	19	50	92	72.7
Sudan III	1.0 *	5	33	42	38.1	3	44	65	55.6
	0.5 *	10	44	61	52.7	9	58	80	70.3
	0.3 *	7	58	75	66.4	5	65	75	70.0
Butter yellow	0.05 %	11	27	46	33.8	9	39	60	47.6
	0.02 %	10	39	80	55.7	10	51	98	75.1
Boric acid	0.01 %	2	32	43	37.5	11	44	77	60.2
Acriflavine	0.03 %	12	28	48	41.6	8	53	77	66.2

\* cc of saturated alcohol solution in 10 cc of culture medium.

Glass, B., and Schmukler, M.  
Attempt to detect pseudo-  
allelism at the dumpy locus  
(2-13.0).

An attempt was made to determine whether  
vortex and oblique are pseudoalleles. The  
mutants used were  $dp^V$ , showing only thoracic  
vortices, and  $dp^{O2}$ , showing only shortened  
wings (like dumpy in degree). [ $dp^{V51}$ --

appeared in 1951 in stock X-rayed in 1949.  $dp^{O2}$ --origin unknown; kept in  
stock (John Hopkins, No. 18) since 1944.]  $dp^{O2}$  was crossed with  $dp^V$ , and the  
 $F_1$  females were test-crossed to  $dp/Cy$  males, dumpy showing both thoracic  
vortices and shortened wings. The progeny included 779 oblique, 757 vortex,  
44 "dumpy," and 6 wild-type flies; total, 1586.

The apparent crossovers were tested by backcrossing to  $dp/Cy$ . Thirty  
apparently dumpy flies and five apparently wild-type flies were tested. The



former yielded dumpy and oblique offspring in every case; the latter yielded dumpy and vortex in every case. It is therefore clear that no true cross-overs had been obtained. The oblique allele tested had thus showed reversed dominance (vortex dominant over nonvortex) of the dumpy-vortex effect in 5.35% of dumpy/oblique flies. The vortex allele had showed a lack of penetrance of the vortex effect in vortex/dumpy flies amounting to 0.8%. The attempt to detect pseudoallelism, therefore, proved impractical, and was abandoned.

Hinton, Claude W. The production of superfemale-female mosaics.

About 25 mosaic females comparable to the one described by Hinton (DIS-26) have been incidentally recovered from a variety of crosses involving Catchside's unstable ring chromosome. It is evident from the mutants involved that these mosaics began as superfemale zygotes, in which subsequent elimination of the ring chromosome occurred; the ring chromosome may be either maternal or paternal in origin. Although the area of 3X hypodermal tissue was sometimes small, only two of twelve mated superfemale-female mosaics have produced offspring. One of the fertile ones transmitted the  $y\ w\ spl\ sn$ , the  $In(1)dl-49$ ,  $y\ w\ lz^S$ , and the  $In(X^{c2})w^{vc}$ ,  $f$  chromosomes, verifying her 3X constitution. Despite their poor fertility, these superfemale-females provide a natural experiment analogous to Beadle and Ephrussi's transplantation of superfemale ovaries into regular female hosts.

Hollands, Keith G., and Cole, Kathleen M. An investigation of the mutagenic effect of colchicine on D. melanogaster, using the aerosol technique.

The apparatus consisted of a modification of the type used by Demerec in his work and was composed essentially of a magnetic valve, an electric timer, a glass nebulizer, tubing, and treatment bottles. With this technique, a solution of colchicine in water gave indications of a positive mutagenic effect. Colchicine applied in this fine spray exercised a retarding effect on the development of the progeny of treated adult D. melanogaster. Further investigations are warranted.

Hollingsworth, M. J. Intersexes in D. subobscura.

The external and internal anatomy of intersexes in D. subobscura (DIS-25 and 26) has been studied in detail. Females homozygous for the gene  $ix$  become male-like in varying degrees, depending on the genetic background. Since a complete range of types from extreme female-like to extreme male-like has been obtained, it has been possible, by using these intermediate forms, to homologize the structures in the female external genitalia with those of the male. The conclusions arrived at differ on some points from those reached by Dobzhansky, Ferris, Goldschmidt, and Newby in their studies on the genitalia of Drosophila.

A positive correlation has been found between the degree of development of the male and the amount of reduction of the female structures, and between the changes in the anal plates in the male-like direction and the degree of development of male structures. There is no correlation between the degree of maleness of the external genitalia and the degree of maleness of the gonads.

Internally, the male and female ducts develop from different regions of the genital disc, those of the male being posterior to those of the female.

No effect of maternal age on the degree of maleness of intersexes has been observed. The 39 intersexes from one pair, in a period of 20 days, were very uniform. The 38 intersexes from another pair, in a period of 15 days, became somewhat more female-like.

Ishihara, T., Momma, E., and Makino, S. Diurnal activity of some *Drosophila* species.

Collections of flies were made with the use of banana traps. The results of observations made in the Botanical Garden, Sapporo (an altitude of about 15 m), from July to August, showed that *D. auraria*, *D. nigromaculata*, and *D. transversa* were bimodal in their diurnal activity. Observations made in Mt. Asahidake (having an altitude of 1060 m) in July showed that *D. bifasciata* had a clear bimodality of diurnal activity, whereas *D. nigromaculata* was incompletely bimodal. With the light less than 4 lux, or at temperatures below 10° C, flies became mostly dormant, either before sunset or after sunrise. On cloudy and rainy days when the humidity was higher than 90%, diurnal activity was incompletely bimodal.

Judd, Burke H. Studies concerning the lethality of T(1;4)<sup>w258-21</sup>.

Investigation of the translocation T(1;4)<sup>w258-21</sup> has shown that the lethality of this rearrangement is probably due to a variegation effect directly associated with the

translocation, and is not due to a lethal closely linked to the break points. This rearrangement shows variegation for Notch, diminutive, split, and white. Two males hemizygous for this translocation and probably carrying extra Y chromosomes have been recovered. The presence of extra Y's could not be confirmed, since these males were sterile. The eyes of these males were slightly smaller than normal and the facets were somewhat irregular; there was no variegation for white. Several thoracic bristles were missing (dorsocentrals and scutellars), and the microchêtes were rather sparse and irregularly distributed. The over-all size of these males was somewhat less than that of their sibs.

Further evidence against a closely linked lethal comes from the cross-over products recovered from the translocation. These show that if a separate lethal is present it must lie to the right of split and to the left of echinus, since all other regions of the X chromosome have been recovered in normal males.

Studies using females of constitution T(1;4)<sup>w258-21</sup>/In(X<sup>c2</sup>)<sup>w<sup>vc</sup></sup>, f show that the translocation is also cell lethal. The In(X<sup>c2</sup>)<sup>w<sup>vc</sup></sup>, f chromosome is frequently eliminated to give gynandromorphs. No elimination was observed in females of the above constitution, whereas sisters (Complete/In(X<sup>c2</sup>)<sup>w<sup>vc</sup></sup>, f) gave a high frequency of gynandromorphs. The presence of a Y chromosome in these females seems to have no effect on the cell lethality; however, females known to carry two extra Y chromosomes were not studied.

Kanehisa, T. Tumors found in wild strains of *D. virilis* and other *Drosophila* species.

Tumors similar to that in the Maruyama strain (DIS-25) were found in wild strains collected at Otaru, Otsu, Izushi, and Daimanji in Japan. The number of tumor indi-

viduals actually found in these strains is given in the table. Expressivity of these tumors is lower than that of Maruyama. Similar types of tumors were also found in wild strains of *D. immigrans*, *D. nigromaculata*, and *D. funebris* collected in Japan.

<u>Strains</u>	<u>Tumors</u>	<u>Total flies investigated</u>
Otaru	149	1243
Otsu	26	325
Izushi	10	195
Daimanji	69	627
New York	110	648



Kikkawa, H. A new substance inducing an eye color in *Drosophila*.

In collaboration with a chemist, Dr. S. Senoh of the Osaka City University, the effect of various substances relating to kynurenine on the eye color of v, bw; cn, bw; st, bw; and w of *D. melanogaster* was examined. The substances used were as follows: benzoylalanine, 2-hydroxybenzoylalanine, 3-hydroxybenzoylalanine, 2,3-dihydroxybenzoylalanine, 2,3-dihydroxybenzoic acid, 5-hydroxykynurenine, 3,4-dihydroxykynurenine, 3,5-dihydroxykynurenine, and 3,6-dihydroxykynurenine.

The effect of 2,3-dihydroxybenzoylalanine was very specific, that is, it gave rise to a deep yellow eye color in the cn, bw mutant. But the substance was nearly ineffective in the v, bw mutant. Furthermore, it gave a negative result in the white-1 mutant of *Bombyx mori*, which was assumed to be homologous to the cinnabar mutant of *Drosophila*.

Kikkawa, H., Ogaki, M., and Tsukamoto, M. Resistance to insecticides in *D. melanogaster*.

Degree of resistance to DDT, BHC, parathion, and other insecticides was examined in isogenic strains collected from various localities in Japan. Generally speaking, strains obtained from localities where the insecticide had been frequently used showed high resistance. However, several mutant strains were found to have high resistance notwithstanding the fact that they had been cultured for a long time in the laboratory and had never been treated with insecticides. This fact seems to indicate that resistance to insecticides is not produced by treatment with insecticides, but is present as a spontaneous mutation. Stated another way, the mutation and selection hypothesis seems to apply in this case.

Genetic analyses employing resistant and nonresistant strains with visible genic markers, showed that the trait of resistance was dominant to nonresistance, and the major gene responsible for this trait was located near 70 in the second chromosome. It is of great interest that resistance to DDT, BHC, parathion, chlordane, nicotine, and other contact or nerve poisons seems to be controlled by the same dominant gene. This seems to explain the phenomenon of cross-resistance from a theoretical point of view. The chemical function of the major gene located near 70 in the second chromosome is being studied.

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King, James C. Development of resistance to DDT in *D. melanogaster*.

As part of a program for the study of the genetics of resistance to insecticides supported by the Research and Development Board of the Office of the Surgeon General

(Contract No. DA-49-007-MD-327), work has been under way for about fifteen months toward developing stocks of *D. melanogaster* resistant to DDT. Adult flies are treated with an aerosol of DDT dissolved in tributyrin; dosage is measured in time of exposure, and survivors are used as parents of the succeeding generation. The ten selected lines being carried stem from two original stocks: one a laboratory Oregon-R, the other a wild stock collected in a grocery store in Syosset, New York, in July, 1952. The selected lines are distributed among three levels of selective intensity: one in which all the survivors of a dose killing approximately 50% of the treated flies are used as parents; another in which about ten pairs of flies, survivors of a dose killing 90% or more of those treated, are used as parents; and a third in which the parents are a single pair of survivors of a treatment resulting in close to 99% mortality. Since about a thousand flies are used for each treatment, the lines subjected to the two highest levels can be treated only in alternate generations. Every other generation must remain untreated in order to build up populations large enough for treatment.



The problem of measuring resistance is very complex. Many variables affect the results: some connected with the physiological condition of the flies, others involving the conditions of administering the insecticide. With the most meticulous techniques, there are still troublesome fluctuations in results; variances are high and errors large. After some twenty generations of selection, however, a picture of the response is emerging and some results are clear.

The lines stemming from the Ore-R stock show no measurable increase in resistance as compared with the control. The Syosset lines, on the other hand, have developed resistance. The most resistant lines are those carried at the 50% level of selective intensity. Here the LD<sub>50</sub> now stands at approximately twenty minutes' exposure as compared with seven or eight for the control. The Syosset lines carried at higher levels of selective intensity lag behind those carried at the 50% level, but of course they have been subjected to selection in only half as many generations. A cross between one of the most resistant lines and the control gave an F<sub>1</sub> of intermediate resistance and an F<sub>2</sub> that showed no more resistance than the control.

The program is being continued and further results will be published as they become available.

Lefevre, G., Jr., and  
Farnsworth, P. Reverse  
mutation at the forked  
locus.

Through the courtesy of Dr. H. M. Green we have been provided with forked alleles of three different kinds: (1) f<sup>1</sup>, spontaneous in origin and suppressed by Whittinghill's forked suppressor; (2) f<sup>36a</sup>, spontaneous in origin but not suppressed; and (3) f<sup>51a4</sup>, X-ray-induced but not suppressed. Males from each stock, carrying additional markers, were exposed to 5000-r doses of X-rays and were then mated to y<sup>2</sup> w<sup>a</sup> v f, sc<sup>8</sup> dl-49 females. The F<sub>1</sub> females produced from this cross were closely inspected for straightened bristles, indicative of reverse mutation or suppression of the f locus. In the f<sup>1</sup> series, many F<sub>1</sub> flies with straightened bristles were found. Breeding tests showed that all but one resulted from dominant autosomal suppressors of forked. One reverse mutation was found, among 44,000 F<sub>1</sub> females, and this one was not fully wild-type but exhibited very weak f characteristics. Among 52,000 F<sub>1</sub> females in the f<sup>36a</sup> series, not one fly with straightened bristles was observed. Apparently, f<sup>36a</sup> does not respond to any suppressors of forked. Data on f<sup>51a4</sup> are not yet complete, and more exposures are in progress. Spontaneous reversion at the f locus is also being investigated.

Levitan, Max. Crossing  
over adjacent to over-  
lapping and included  
inversions.

Various authors have suggested that closeness of pairing is interfered with between homologues which differ by two or more overlapping or included inversions, and that this leads to reduction in crossing over in the area adjacent to these inversions. D. robusta females being analyzed for a study of chromosomal polymorphism in natural populations proved in many cases to be heterozygous for two overlapping or two included inversions on the left arm (all ending near the centromere) of chromosome 2, and also heterozygous for a cytologically terminal inversion in the right arm. This permitted a study of cytological crossing over in the area between the overlapping or included inversions and the terminal inversion, as compared to crossing over in the same region when the left arm was heterozygous for arrangements differing only by simple, one-step, inversions. The method used is analogous to the one described by Carson (Genetics 38: 168-186, 1953). The data to date show that in individuals of similar degrees of heterozygosity in the X and

third chromosomes, crossing over adjacent to the overlapping or included inversions in the second chromosome is of the same magnitude as, or occasionally even greater than, crossing over in individuals heterozygous for the simple inversions. The indicated results are being checked by Mr. W. Massie in this laboratory, with better control of aging and temperature than is possible with flies collected in nature.

Lindsley, D. L. Additional composite flies.

The following are descriptions of the origin and phenotype of three sexually mosaic individuals which do not conform to

expectations based on simple chromosome elimination.

(1)  $y\ w/Y\ \text{♀} \times \text{In}(1)sc^{8L}\ \text{EN}^R, f/Y\ \text{♂}$  gave a bilateral gynandromorph, which was  $y\ w\ \text{♀}$  on one side and  $f\ \text{♂}$  on the other. This fly may have arisen as a result of multiple elimination from a triplo-X zygote nucleus, or from the fertilization of two egg nuclei, a  $y\ w$ -bearing egg nucleus by a Y-bearing sperm and a Y-bearing egg nucleus by an X-bearing sperm. The fly was definitely not triregional, which might be expected following double elimination.

(2)  $\text{Ins}(1)sc^{8L}, S, sc^{4R}, y\ w^a\ B/Y, sc^{19i}\ \text{♂} \times y\ w/sc^{8\cdot}Y\ \text{♀}$  yielded a  $y\ w\ \text{♀}$  in which the region of the postfrons and the vertex was extreme  $sc$  and lacked ocelli; all the left eye and part of the right were  $w^a$ , the left eye being also  $B$  (resembling  $B/+$ , not  $B/+/+$ ); and the left wing was smaller than normal and nicked. Both prothoracic legs lacked sex combs. Fertilization of two egg nuclei seems unlikely, since the fly was completely yellow, whereas multiple elimination in a  $y\ w/y\ w^a\ B$  embryo, with some superfemale tissue still remaining in the region of the abnormal wing, is consistent with most of the observations. The widening of the presumably  $B/O$  eye and the absence of ocelli are unexplained on this basis.

(3)  $\text{In}(1)sc^{8L}, S, sc^{4R}, y\ w^a\ B/Y, sc^{19i}\ \text{♂} \times y\ v\ f/sc^{Sl\cdot}Y^L\ \text{♀}$  yielded an individual with  $f\ \text{♀}$  thorax and abdomen. The prefrontal and vertical regions were extreme  $sc$ , non- $f$  ( $sc^{def}/sc^{Sl}$ ), and each eye had dorsal patches of light pigment, whereas the color of the rest of each eye was wild-type. In one eye the light patch was large, and the eye was misshapen, presumably owing to mosaicism for  $B$ . The color of the light patch was nearly  $w$  (presumably  $w^a$ ); the color of the rest of the eye was due to diffusion of  $v^+$  substance from the  $sc\ w^a\ B$  tissue. This fly is thought to have arisen through fertilization of two egg nuclei:  $sc^{Sl\cdot}Y^L\ \text{♀} \times \text{In}(1)sc^{8L}, S, sc^{4R}, y\ w^a\ B\ \text{♂}$  and  $y\ v\ f\ \text{♀} \times Y, sc^{19i}\ \text{♂}$ .

Consideration of two egg nuclei generally involves maturation and subsequent fertilization of the nuclei of a binucleate primary oöcyte, although fertilization of the egg nucleus and one of the polar-body nuclei seems a reasonable alternative.

Lindsley, D. L. Failure to demonstrate sister-strand crossing over.

The recovery of what seemed unreasonably frequent  $w^a\ B^+$  offspring from  $M-5/+$  females led to a consideration of the possibility that they might be  $B$  reversals

caused by sister-strand crossing over rather than mere removal of  $B$  from  $M-5$  by double crossing over. It might be that in a situation where homologous pairing and exchange are reduced to a minimum, sister-strand exchange is increased to a detectable level (unequal exchange, however, might be the least efficient criterion of sister exchange). To check this,  $y^2\ M-5/f\ B\ fu$  females were crossed to  $y^2\ w^a\ v\ f$  males. The  $F_1$  were as follows: 3871  $y^2\ w^a\ B$  males, 3879  $f\ B\ fu$  males, 4343  $y^2\ w^a\ B$  females, 4676  $f\ B$  females, 17 patroclinous males, 2 matroclinous females, and 8 double crossovers. It



thus became obvious that the  $w^a B^+$  individuals originally recorded were double crossovers and not B reversals.

Lindsley, D. L., and Novitski, E. Frequent linkage of  $Y^S X \cdot Y^L$  and chromosome 4.

From females irradiated with 3600 r which were heterozygous for  $Y^S X \cdot Y^{Lsc8}$ ,  $In(1)EN$ ,  $y \cdot y^+$  and  $In(1)dl-49$ ,  $w lz^S$  crossed with M-5 males, y male offspring were commonly encountered (0.7% of all  $F_1$  males). These

flies were found to carry the  $Y^S X \cdot Y^L$  chromosome which had lost  $y^+$  from the tip of the  $Y^L$  arm; such y chromosomes were also found in exceptional females. Tests of 16 such chromosomes show that (a) they all have retained their inverted sequence and the fertility factors of  $Y^S$ , and are therefore not rings; (b) all but one have lost at least some  $Y^L$  fertility factors; and (c) five of them now have chromosome 4 ( $ci^+$  and  $ey^+$ ) linked to them. One of those carrying a chromosome 4 linked is the one which has retained its  $Y^L$  fertility factors and is therefore a  $Y^S X \cdot Y^L$  4 chromosome.

A second type of X-4 involvement, and one that was spontaneous, was discovered in a breakdown product from y w attached-X. This chromosome was a single y w X but seemed to disturb normal disjunction of chromosome 4. Upon testing, this chromosome was discovered to carry  $ci^+$  and  $ey^+$ . These findings may indicate some degree of homology between X and 4 heterochromatin.

Lüning, K. G. Variation in breakability of chromosomes in mature spermatozoa of D. melanogaster.

In experiments in which sperm was irradiated, with the same dose, in males and in inseminated females, Dr. Bonnier and myself observed a higher rate of recessive lethals in the sperm irradiated in females. It was not

important whether the male-irradiated sperm was tested in previously irradiated or in nonirradiated females. In several series of experiments I have studied the variation of aberrations due to chromosome breaks, viz., yellow mutations in Muller-5 chromosomes and hyperploid males, and males supposed to be XO. The material consisted of 393,585  $F_1$  offspring from X-carrying spermatozoa examined for y females and hyperploid males, and 14,701  $F_1$  females and males in which XO males were studied. The results showed 25%-60% more breaks in spermatozoa irradiated in females than in spermatozoa irradiated in males. The corresponding increase in recessive lethals was 10%-25%.

From the technical point of view also the results are of interest, as the rates of hyperploid males induced with the same dose varied with both the males and the females. This is shown in the table, which gives the rates per  $10^4$ . Series M represents irradiation of males only, Series vF-M irradiation of virgin females and males, and Series iF-M irradiation of inseminated females.

Hyperploid Males										
Ser.	<u>Canton-S ♂♂</u>					<u>M-5 ♂♂</u>				
	y w sn	y ac sc pn sn				y w sn	y ac sc pn sn			
	♀♀	♀♀				♀♀	♀♀			
M	6	10				10	21			
vF-M	6	-				9	21			
iF-M	13	21				20	29			

From this table it is clear that comparisons between experiments of this type can be made only within the same type of mating.



Lüning, K. G. The effect of oxygen tension on chromosome breaks.

In the above note and in several previous papers I have shown that the breakability of chromosomes by X-rays depends on the stages in spermiogenesis treated, the age of the males at treatment, and whether the spermatozoa are irradiated in males or in females. In all cases a greater variation was observed in the rates of breakage than in the rates of induction of recessive lethal mutations. It was consequently concluded that a certain ratio of the recessive lethals is independent of breakage.

In experiments by Baker *et al.* with different oxygen tensions, the rates of occurrence of breaks and of recessive lethals seemed to be reduced to the same extent. In a series of experiments I have confirmed this result. For yellow mutations (minute rearrangements) the ratio  $N_2$ /air was 0.75, and for recessive lethals from the same series, 0.73. Both values are a little higher than Baker's results. The parallel reduction in breaks and recessive lethals can be explained if the low oxygen tension is effective in protecting against primary injuries, but not if it simulates protection by increasing the rate of reunion.

In order to analyze this problem further I made a crucial test by irradiating in air and in nitrogen two types of males: (1) with rod-X and marked Y ( $sc^8$  Y with the  $y^+$  gene), and (2) with closed-X and  $sc^8$  Y. The males were mated to  $y$  w sn females, guaranteed to be free from extra Y chromosomes. The normal  $F_1$  males were  $y$  w sn;  $sc^8$  Y, phenotypically gray. If the X or the Y was lost the males would be  $y$  w sn (XO), phenotypically yellow. As Pontecorvo has shown, most apparent losses are real losses. So we would expect the same rate of rod-X and closed-X losses if the oxygen effect was a primary protection, but a lower rate of closed-X than of rod-X losses if the effect was on reunions. The results favor the former hypothesis, because the ratio  $N_2$ /air for closed-X, corrected for the spontaneous rate, was 0.70, and that for rod-X, with correction, was 0.82.

In order to test the oxygen effect on the known variations in breakability of chromosomes in various stages of spermiogenesis, two experiments were carried out, showing that when flies were irradiated in  $N_2$  atmosphere about twice as many induced breaks were found in sperm from the period 7-10 days after treatment than in those from the first 6 days. I had previously shown that when flies were irradiated in air there was a quadrupled instead of a doubled effect in the 7-to-10-day period. This discrepancy will be studied further.

MacKendrick, M. Elaine.  
Further examples of crossing over between alleles of the w series.

Following the discovery of crossing over between alleles of the w series in *D. melanogaster* (w and  $w^{bl}$ , and w and  $w^{co}$ , MacKendrick and Pontecorvo, 1952), further alleles have been investigated.  $w^{bl}$ ,  $w^{co}$ ,  $w^e$ ,  $w^i$ , and  $w^a$  (from Cal. Tech., designated  $w^{aCT}$ ) occupy a position on the X chromosome about 0.025 units to the left of w. Another  $w^a$  (from Edinburgh, designated  $w^{aE}$ ) does not cross over with w. In a total of 145,000 flies obtained in about equal proportions from  $w^e/w^{co}$ ,  $w^{bl}/w^{co}$ ,  $w^{bl}/w^e$ ,  $w^{bl}/w^{aCT}$  no recombinant types arose. These results identify two regions, one containing  $w^{bl}$ ,  $w^{co}$ ,  $w^e$ ,  $w^i$ , and  $w^{aCT}$  and the other containing w and  $w^{aE}$ .

However, heterozygotes  $w^{bl}/w^{aE}$ , which yield both wild-type and white crossovers, produce the latter through two different directions of crossing over. This suggests that three regions are involved, with epistasis playing a part.

Makino, S., and Kanehisa, T. Hereditary melanotic tumor occurring in D. virilis.

shape. They develop on the mesonotum, scutellum, pleura, and head. They are recognized as pigmented bodies in the imago within ten to twenty days after emergence. The results of crossing between the tumorous strain and the wild nontumor strain suggest a maternal influence on the incidence of tumors in the offspring.

Morphological and genetical studies have been made on the tumorous growth occurring in a wild strain of D. virilis collected in the vicinity of Sapporo, Hokkaido. The tumors are benign, and vary in size and

Mather, W. B. A survey of the *Drosophila* fauna of southeast Queensland.

Since July, 1952, a survey of the *Drosophila* fauna of southeast Queensland has been under way. The main collecting site has been the University Farm at Moggill just outside Brisbane, where regular weekly collections have been made from banana baits. To date, sixteen species have been detected and are in culture: D. busckii, D. enigma (*victoria* species group), D. melanogaster, D. repleta, D. serrata (*melanogaster* species group), D. simulans, species H (*victoria* species group), species L (*victoria* species group), species N (*mulleri* subgroup), species O (*Sophophora* subgenus), species P (*victoria* species group), species Q (*Pholadoris* subgenus), species R (*melanogaster* species group). By far the dominant species at Moggill Farm is simulans: circa 80% from July to October, falling to circa 30% from November to January, and rising to circa 80% from March to June. The second dominant species is serrata (also from the *melanogaster* species group): circa 40% from January to February, but falling to circa 10% from July to October and from April to June. Besides the collections made in southeast Queensland, isolated collections have been made along the eastern seaboard from the New South Wales border to Thursday Island, adding ananassae and spinofemora to our stocks. An interesting feature of the fauna is the presence of six species of the *Pholadoris* subgenus, viz., lativittata, enigma, and the new species H, L, P, and Q. Of these, all except Q fall into the *victoria* species group but Q appears to be assignable neither to the *victoria* nor to the *mirim* species group. An analysis of the Moggill Farm data, redescrptions of lativittata, serrata, and enigma, and descriptions of the seven new species, together with their chromosome morphology, are being prepared for publication.

Meyer, Helen U. Two new cases of crossing over in the germ line of male D. melanogaster.

In all instances the pole cells of these males had been treated with ultraviolet. In some cases lethals were present in those cells in which crossing over had occurred during later cell multiplication.

In addition to one case reported in DIS-26, two more such examples of crossing over in the germ cells of *Drosophila* males could be detected in the course of our work on induction of mutations by the polar cap method.

One case involved crossing over between two third chromosomes which were marked by the recessive genes *ju* and *ri*, alternatively. Fifty-seven  $F_1$  males from one treated polar cap were tested for lethals in both their second and third chromosomes. Of 27 *ri* chromosomes tested, 25 had a lethal ( $l_{ri}$ ) and also an additional visible mutation ( $mut_{ri}$ ); of 30 *ju* chromosomes tested, 29 carried another lethal ( $l_{ju}$ ). Two  $F_1$  males had the crossover combination *ri l<sub>ju</sub>*, and one  $F_1$  male contained the reciprocal arrangement *ju l<sub>ri</sub> mut<sub>ri</sub>*. The presence of these lethals in all germ cells tested either was due to preexisting lethals in all the third chromosomes of both maternal and paternal origin, or, if these lethals had been induced by the treatment, then all the offspring



were derived from only one single propagating germ cell. In that case the crossing over must have occurred in a later cell than that in which the lethal arose, and if it was caused by the mutagen it arose as an "after effect." For our present purpose these lethals served as additional markers to distinguish the crossover combinations. No information is available as to whether or not crossing over occurred in any of the other chromosomes. When the same males were tested for the second chromosomes, there was one single lethal found, but not in the same cell in which crossing over had occurred.

The other case involved two second chromosomes from offspring of a treated male of genotype  $cn\ crs/dp^0\ ta; ve/ru\ ri$ . Analysis of both the treated second and third chromosomes of 39  $F_1$  males showed the presence among them of 14 cases of induced lethals, derived from 8 occurrences of mutation in the primordial germ cells. Among them was one group of lethals in a third chromosome marked with  $ve$  which proved to be nonallelic to two other groups of lethals in  $ve$  chromosomes. This particular group was recovered in 2  $F_1$  males (out of a total of 16 males testing the  $ve$  chromosome); when bred for their second chromosomes, both these (and only these) males proved to carry the crossover combination  $dp^0\ ta\ cn\ crs$ . It is a temptation to assume that the action of the mutagen, besides inducing a lethal in the third chromosome, also caused crossing over between the second chromosomes in the same germ cell. If so, then several hours at least must have passed since the termination of the ultraviolet treatment, because, according to Rabinowitz and Sonnenblick, the pole cells remain in interphase and do not enter the prophase stage till they are permanently located in the gonads, some 14 hours later.

However, we are not in a position yet to decide whether or not ultraviolet, like some other mutagenic agents, can cause crossing over to occur in a male *Drosophila*. Its mutagenic action might simply have facilitated the detection of these cases by furnishing markers in the form of lethals. Experiments to clarify this point are under way.

Mickey, George H., and Yanders, Armon. Specific-loci mutants from X-rays and fast neutrons.

Mutation rates were determined for eight specific loci ( $res$ ) in the third chromosome of *D. melanogaster*, after irradiation with 250 kvp X-rays and fast neutrons from the ORNL 86-inch cyclotron. The mutation

rates in the group exposed to cyclotron neutrons were significantly higher per unit of dose ( $rep$ ) than in groups exposed to X-rays. We interpret this to mean that the effect of neutrons is greater in producing chromosome aberrations, particularly small deletions.

Milani, R. Genetical researches on the housefly.

Populations of houseflies are polymorphic and carry an impressive number of recessive mutations, affecting mostly the wings.

In some cases the genes involved have high density in a given population, where they have been found several times in a period of seven years, and appear to be present in geographically distinct populations. The mutations usually have poor penetrance and variable expressivity. Inbreeding in most cases is followed by extinction of the lines: sterility and larval and pupal mortality are involved. A line in its 22nd generation of brother-sister matings was still highly polymorphic for color patterns of the abdomen. Gynandromorphs have been found, both in nature and in the laboratory, with clear indications of familial incidence. Anteroposterior gynandromorphs with female abdomen have been seen in copulation.



Mittler, Sidney. Influence of vitamins upon incidence of tumors in tu<sup>50j</sup> stock.

The incidence of tu<sup>50j</sup> in D. melanogaster is related to nutrition. The flies were reared on a medium which consisted mainly of glucose, sodium ammonium phosphate, and trace elements, and the yeast Hansenula anomala. Thus practically all the nutritive factors, vitamins, amino acids, came from the yeast. S. cerevisiae (Baker's yeast) cannot grow on the above medium unless some of the B Complex vitamins are present; thus that yeast was rejected for this reason and not as Plaine (DIS-26) misinterpreted. Addition of large amounts of vitamins to the above vitamin-amino acid-free medium altered the incidence of tumors. Riboflavin, nicotinic acid, pyridoxine hydrochloride, calcium pantothenate, ergosterol, B-12, and p-aminobenzoic acid all increase the penetrance of the tumor. Vitamins A and K, thiamine hydrochloride, choline hydrochloride, biotin, calciferol have no influence on the tumor production.

Momma, E., Suzuki, K., and Makino, S. Drosophilidae feeding and breeding on fungi.

In order to learn which drosophilid species feed or breed on fungi, collections of flies by net-sweeping were made in the Botanical Garden, Hokkaido University, Sapporo, during the period June to September, 1953. In addition, fungi of various kinds from the same place were collected and cultured in the laboratory. The determination of the species was made with young flies emerged from larvae or eggs thus collected. The results are summarized in Tables 1 and 2.

Table 1. Drosophilid Species Feeding on Fungi

<u>Species of fungi</u>	<u>Species of Drosophilidae</u>	
Coprinus micaceus	Mycodrosophila sp.	Hirtodrosophila sp.
	D. nigromaculata	D. transversa
	D. immigrans	D. auraria
	D. funebris	D. coracina
	Sp. close to histrio	D. testacea
	D. sp. (melanica gr.)	D. nipponica
C. atramentarius	Scaptomyza sp.	Hirtodrosophila sp.
	D. transversa	Sp. close to histrio
	D. immigrans	D. lutea
	D. auraria	D. funebris
	D. testacea	D. nipponica
	D. nigromaculata	
Hypholoma appendiculatum	Mycodrosophila sp.	Hirtodrosophila sp.
	D. nigromaculata	D. transversa
	Sp. close to histrio	
Lactarius vellereus	Hirtodrosophila sp.	
Armillaria mellea	Mycodrosophila sp.	Hirtodrosophila sp.
	D. transversa	Sp. close to histrio
Pluteus cervinus	Hirtodrosophila sp.	D. nigromaculata
	D. transversa	
Lepiota sp.	Mycodrosophila sp.	Scaptomyza sp.
	Leucophenga sp.	Hirtodrosophila sp.
Mycena sp.	Hirtodrosophila sp.	
	Mycodrosophila sp.	Hirtodrosophila sp.
Pleurotus ostreatus	D. nigromaculata	Sp. close to histrio
	Mycodrosophila sp.	Leucophenga sp.
P. cornucopioides	Hirtodrosophila sp.	D. nigromaculata
	D. testacea	Sp. close to histrio

(table continued next page)

(Table 1 continued)

<u>Species of fungi</u>	<u>Species of Drosophilidae</u>
Trametes confragosa	Hirtodrosophila sp.
Polyporus squamosus	Mycodrosophila sp.    Scaptomyza sp.
	Hirtodrosophila sp.    D. nigromaculata
	D. transversa    D. coracina
	Sp. close to histrio    D. testacea
	D. nipponica

Table 2. Drosophilid Species Breeding on Fungi

<u>Species of fungi</u>	<u>Species of Drosophilidae</u>
Coprinus micaceus	Mycodrosophila sp.    D. testacea
	D. funebris
C. atramentarius	D. transversa
Pleurotus cornucopioides	Leucophenga sp.    Hirtodrosophila sp.
Polyporus squamosus	D. testacea
P. varius	Mycodrosophila sp.    D. transversa
	D. testacea

Moriwaki, D., Okada, T.,  
Ohba, S., and Kurokawa, H.  
 Further information on Drosophila species belonging to the "obscura" group found in Japan.

The species D. bifasciata seems to be the most common wild species, being widely distributed all over the mountain districts in Japan. Besides the mountains, some forest zones in level country also form its habitat, depending on the season. For example, it was collected in Hokkaido (Akkeshi,

etc., less than 50 m above sea level) in summer, and in Asakawa (near Tokyo, about 200 m above sea level) in winter. In the latter locality monthly investigations were made for more than a year, during which time a fairly large number of flies was found in late February, as well as a few in December, March, and July.

Another species identified as D. alpina (see DIS-26, p. 112), was found this summer also in Yatsugatake and its vicinity, which is the only local area in which this species has been found, according to the results of our collections during the last three years. The karyotype was found to consist of two pairs of V-shaped and one pair of rod-shaped chromosomes.

Muller, H. J. Autosomal mutation studies by means of crisscrossed lethals and balanced male-steriles.

This technique, like that employing the "sifter" stock described in DIS-25 (pp. 117-118), has as its purpose the "automatizing" of the inbreeding of F<sub>2</sub> females with the required type of F<sub>2</sub> males, that

is, avoidance of the very time-consuming and uncertain operation of obtaining virgin females in each of the numerous F<sub>1</sub>-F<sub>2</sub> cultures in a large-scale mutation experiment on an autosome. When the method is used in its entirety, it has the disadvantage, as compared with the sifter method, of requiring the investigation to be conducted on given chromosomes, containing one or another male-sterile gene, but it has the following advantages over the sifter method: the genetic scheme breaks down less often through crossing over, the flies used in the crosses have a higher productivity, and the final stocks of mutants and suspected mutants lend themselves more readily to extended measurements of relative viability, such as are needed for studies of invisible "detrimental" genes. The writer has constructed a series of special second-chromosome stocks for this purpose.



For the more efficient use of this method, it is advantageous to have three isogenic balanced stocks, each containing a different male-sterile gene in that chromosome which is to be used for mutation-frequency studies. Examples are furnished by our stocks g44, g39, and g116 as listed in the Indiana stock list of DIS-26. The three distinctive second chromosomes in these stocks have the respective compositions crs, cn ms rm sp, and ta cn bw, and all are balanced over a chromosome with both "Curly inversions," of gene composition  $al^2$  Cy Bl  $cn^2$   $L^4$   $sp^2$ . The symbols crs and ms denote the invisible male-steriles known as "cream-underscored sterile" and "male-sterile 2.1," lying at about 108 and 66, respectively; whereas ta denotes "tapered," which causes both male sterility and tapered wings and lies at about 57. (The symbol rm denotes "ruffled microchaetes," which arose with ms.) In preparation for an experiment, the " $P_0$ " cross is made of cn ms rm sp/ $al^2$  Cy Bl  $cn^2$   $L^4$   $sp^2$  by ta cn bw/ $al^2$  Cy Bl  $cn^2$   $L^4$   $sp^2$ , in either direction; and the non-Curly sons, of composition ta cn bw/cn ms rm sp, are crossed by homozygous crs females. This " $P_0$ " cross gives rise to sons, called " $P_1$ ," in which the frequency of mutation is to be investigated. Half of them are of composition ta cn bw/crs and half are cn ms rm sp/crs (all being phenotypically +).

For the investigation of mutation rate in these " $P_1$ " males, they may be crossed individually to " $P_1$ " females of our balanced stock g102, having the composition Cy, In L dp<sup>Tx</sup> cn bw/S Sp cn bw. Crossing over between the lethals Cy or dp<sup>Tx</sup> and S or Sp is here prevented by the left-arm inversion associated with Cy (that of the right arm being absent). Among the  $F_1$ , all six possible combinations are distinguishable by means of their visible markers, and all four types of  $F_1$  males that occur in the cross of any individual  $P_1$  male can be used for the investigation of mutations that may be present in the second chromosome derived from that  $P_1$  male. The composition of these  $F_1$  males may be represented as ta cn bw or cn ms rm sp or crs/Cy, In L dp<sup>Tx</sup> cn bw or S Sp cn bw. No matter to which of the six types an  $F_1$  male belongs, he is to be crossed individually by females of our stock g64, having the composition dp<sup>T</sup> Sp ta cn ms crs/ $S^2$  Cy Bl  $cn^2$   $L^4$   $sp^2$ . On this scheme, the undesired second chromosome of the  $F_1$  male, no matter whether it is of type Cy dp<sup>Tx</sup> or type S Sp, gives only lethal offspring, by reason of their being homozygous for one or another of these four genes. This is because the  $P_1$  female, which had furnished the "undesired" chromosome of the  $F_1$  male, had had her lethals in an arrangement which was crisscross, as compared with that in the female to which the  $F_1$  male was crossed: thus if the first female were represented as A B/C D the second would be A D/C B.

The desired second chromosome of the  $F_1$  male, that having the male-sterile gene, forms viable combinations with both second chromosomes from the female, but only those  $F_2$  males are fertile which have the desired balanced combination of the male-sterile chromosome with the Curly-containing chromosome, since the other  $F_2$  males are homozygous for a male-sterile gene. Hence all the  $F_2$  females, including those of the desired kind, have necessarily been crossed with the required type of males, and virgins need not be obtained. However, the  $F_2$  flies must be etherized so that the Curly females (and males) may be picked out for breeding, inasmuch as the undesired non-Curly  $F_2$  females (unlike the corresponding males) would be able to breed. Etherization also permits the rare crossovers involving the Curly-containing chromosome to be discarded. The  $F_2$  females and males chosen for breeding have the composition ta cn bw or cn ms rm sp or crs/ $S^2$  Cy Bl  $cn^2$   $L^4$   $sp^2$ .

It then remains to examine the  $F_3$  for mutations. Lethals are made evident, without etherization, by the absence of  $F_3$  flies normal with respect to the dominant combination  $S^2$  Cy Bl  $L^4$ . The detection of most visibles requires inspection of the non-Curly flies under ether, and the detection of detrimen-

tals requires counts. Extended counts can readily be obtained for this purpose by continuing the given balanced stock from  $F_3$ , while always selecting for breeding only the Curly (or, alternatively, only the non-Curly) females. However, such selection is of course unnecessary for merely maintaining the stock.

Extensive experience with this method by Dr. H. U. Meyer and her associates has proved its practicability. Besides the stocks above mentioned, others employing the same male-sterile genes and lethals, but different combinations of markers, have been constructed and used. The choice of the best combinations to use varies somewhat with the purpose of the experiment.

If the male-sterile genes, or others accompanying them, had caused sterility of the homozygous females also, the operation of the scheme would be more fully automatic, both in its use for the detection of lethals and visibles in  $F_3$  and also in its use for measuring viability in later generations. For in that case not only the males but also the females of undesired type (except for some rare crossovers) would be prevented from breeding, and the etherization and selection of  $F_2$  might thereby be avoided. But although we have tried using  $rn$  and  $ap^2$ , which sterilize both sexes, they proved unsuitable for other reasons. Few other recessive genes of fair viability which sterilize both sexes are known. It would be a major task to introduce female-steriles into appropriate combinations with the male-steriles. Moreover, in that case the  $P_0$  female would have to be heterozygous for a balancer chromosome, since the homozygous females would be sterile, and, in consequence, only half the  $P_1$  males (those not receiving the balancer chromosome) could be used for the tests.

It is also possible to use a scheme like the above in which, however, the male-sterile genes have been entirely omitted. In that case it remains unnecessary to obtain virgins in  $F_2$ . However, unless suitable recessive markers are provided to distinguish homozygotes in  $F_3$ , it becomes necessary to etherize the  $F_3$  in order that the heterozygous flies containing the  $dp^T$  Sp chromosome (recognizable by their Sp) may be distinguished from the homozygous non-Curlys. Theoretically, however, a more obvious dominant might be introduced into the  $dp^T$  Sp chromosome, to avoid the necessity for etherization of  $F_3$ . When it is desired to continue any line after  $F_3$ , as a nonselected stock, etherization and the obtaining of virgins becomes necessary in some one generation, in order to remove the unbalancing  $dp^T$  Sp chromosome.

Experience shows that these additional requirements do not make the method, when used without male steriles, impracticable. It is especially useful in this form when the chromosomes to be studied for the frequency of contained mutant genes are derived from wild populations, or from laboratory stocks into which it is not practicable to introduce male-sterile genes. The method without the male-steriles may be denoted simply as that of "crisscrossed lethals." Stocks with crisscrossed third-chromosome lethals have also been constructed for this purpose by the writer, and tests by Dr. Meyer have proved their practicability.

Muller, H. J. Autosomal nondisjunction associated with the rotund translocation.

It is sometimes useful to be able to obtain nondisjunction of major autosomes. It has been found that a very high frequency of such nondisjunction of the second chromosomes can be obtained by using flies heterozygous for a translocation associated with the gene  $rn$  (rotund). Many years ago the writer irradiated a stock of rotund for the purpose of obtaining an inversion in the right arm of chromosome 2 which would give less crossing over with normal than the right-arm inversion associ-



ated with Curly, and which could be used for balancing. The chromosome finally selected because of its considerable reduction of crossing over was however found later to have, in addition, a large-scale translocation with chromosome 3, although the details of the breaks have never been worked out. It is referred to sometimes as "rn, In2RM" and sometimes as "rn, T23," the latter being (for short) more appropriate, since the translocation may be of the insertion-deletion ("transposition") type (into 3), without any actual inversion. It is likely that many present-day stocks now designated merely "rn" have this translocation.

Since nondisjunction of the second chromosome ordinarily gives a visible offspring only when one nondisjunctional gamete fertilizes a complementary nondisjunctional gamete of the opposite sex (one gamete having two second chromosomes and the other none, to give a "diplo-II" zygote), it is necessary, for demonstrating this nondisjunction, to make a cross in which both the male and the female parent are heterozygous for rn, T23. In addition, in order that the nondisjunctionally produced offspring may be recognized as such, it is necessary to provide markers whereby both the second chromosomes of one of the parents may, in the offspring, be distinguished from the second chromosomes of the other parent. This is accomplished when, for example, females of our stock g84, of composition S Sp ab<sup>2</sup> pr Bl rn, T23/al<sup>2</sup> Cy cn<sup>2</sup> (L<sup>4</sup>) sp<sup>2</sup>, are mated with males of composition rn, T23/Gla (produced by a prior crossing of stock g89, rn, T23/Cy cn<sup>2</sup> sp<sup>2</sup> with g73, Gla/pi). Nondisjunctional offspring from this mating will exhibit the complete set of dominants of the female parent, namely, S Sp Bl Cy (L<sup>4</sup>), if they received both second chromosomes from her, or only Gla, if they received both second chromosomes from the father.

Crosses of this kind have shown more than 10% of the offspring to be of the nondisjunctionally produced types. From this it can be reckoned (since only cases of complementary nondisjunction in both parents can show) that more than one-third of the segregations must be nondisjunctional for the second pair of chromosomes (when expressed as an average for both parents, which may however differ in their frequency). Quite possibly the third pair of chromosomes also may undergo frequent nondisjunction when this translocation is present, and even both second and third pairs at once, but this matter has not been studied. Moreover, there is no reason to believe the rn translocation to be unique in these respects.

Muller, H. J. Further evidence of abnormal types of copulation by the male D. melanogaster.

To supplement the report in DIS-25 (pp. 118-119) of copulation by a D. melanogaster male with another male in the latter's neck groove on its dorsal side, the present note records the observation of a male found in

copulation with a dead male. The live male had effected intromission into the genital opening of the dead male and was so securely fixed into the latter that they remained firmly attached after etherization, and later, after immersion in alcohol and killing thereby, although they fell apart on being dried out. The dead male appeared to have been dead for about two days before the copulation occurred, being partly dessicated already. The live male was in a dorsad position relative to the dead male, like that which males take relative to females in the normal copulation of this species. Although the penetration appeared as deep as it normally is, it was not determined whether ejaculation had occurred, nor is it known for how long a period the copulation had been in progress at the time the flies were observed and (immediately afterwards) etherized. The culture containing these flies contained a considerable excess of males.

That response on the part of the partner is unnecessary for copulation

by a *Drosophila* male was already known, from the frequent cases in which copulation has been observed between an active male and an etherized or partly etherized female. Males of copulatory age are also known to copulate with females which are newly hatched and presumably unresponsive sexually. All this, however, is not to deny the fact that the behavior of a responsive female *Drosophila* is conducive to the copulatory act, except in those cases in which the female is too active for the male (as when wild-type females are used with yellow males).

Nakamura, K., Imaizumi, T.,  
Kitazume, Y., Sakami, T.,  
and Takanami, M. Biochemi-  
cal studies on embryonic  
lethal factors in two strains  
of *D. melanogaster*.

in the lethal embryo. In the first two stages, viable and lethal embryos cannot be distinguished morphologically. Results: Valine, isoleucine, and histidine show no remarkable changes either in the normal developing stages or in the lethal embryo. On the contrary, the amounts of glutamic acid, aspartic acid, glycine, arginine, threonine, and serine decrease in the lethal as compared to the viable.

(2) Accumulation of urea in the embryo of a new X-ray-induced strain: A new X-ray-induced lethal strain was obtained in our laboratory. It was found that the effect of the lethal factor appears in the embryo just before hatching; and accumulation of urea was observed in the lethal embryo (xanthidrol method). The locus of the gene was calculated to be 5.8 on the X chromosome.

Details of the two studies will be recorded in another paper.

Novitski, E. An attempt  
to eliminate X chromosomes  
from oögonia.

males. It was assumed that oögonial cells which had lost an X chromosome would give rise to 50% nullo-X eggs, which would be recovered as patroclinous males. In addition, the irradiated females were heterozygous, and the males homozygous, for rucuca, to check on crossover values in such single-X eggs. Classification for the autosomal mutants was abandoned, however, when it became obvious that the attempt to eliminate X's was unsuccessful.

When females were irradiated immediately after emergence, kept in a bottle for three days, and transferred at two-day intervals thereafter, the ratios of patroclinous males/total males were as follows: 0-3 days, 25/3380; 3-5 days, 37/6729; 5-7 days, 5/1606; 7-9 days, 0/3662; 9-11 days, 0/4649; 11-13 days, 1/6540. An unirradiated control gave, in the 0-5 day interval, 0/5810. Furthermore, females treated prior to emergence, during the pupal, larval or egg stage, gave the following frequencies of patroclinous males: pupae treated 8-9 days after deposition of the egg (= 1-2 days before hatching) 2/237; 7-8 days, 10/2178; larvae 6-7 days old, 3/1725; 5-6 days, 0/418; 3-4 days, 0/310; 2-3 days, 0/1509; eggs 4-20 hours old, 0/414; and 0-3 hours, 0/1205.

Since the period after irradiation during which patroclinous males appeared agrees well with the duration of the period after other treatments during which effects on other meiotic phenomena, like crossing over (Plough), are found, it appears as if this effect of the irradiation is confined to the

(1) Amino acid metabolism in lethal embryos of an attached-X strain: Quantitative analyses of amino acids were carried out by the method of microbiological assay. Four egg stages were studied in the viable embryo (see our previous report, DIS-26, p. 114), and the corresponding four stages

For the purpose of determining the meiotic behavior of cells with only one X chromosome, females of *D. melanogaster* were irradiated with 1000 r and mated to B



meiotic period. Either the X chromosomes are refractory to irradiation during oögonial stages, or those cells lacking one X chromosome are unable to proceed as far as the meiotic divisions, either because 2 X's are necessary or because the process of loss of an X is in itself lethal. In any case, it has not been possible, by this method, to produce clusters of one-X cells in the gonads.

Okada, T. Comparative morphology of the rectal papillae of drosophilid flies.

The number (1), arrangement (2), and shape (3) of the rectal papillae were examined in 84 species of drosophilid flies, belonging to 14 genera. (1) The number of papillae in Cryptochaetum grandicorne Rondani was found to be 6. This number is probably unique, in that it differs from the 4 characteristic of both Drosophilidae and Athericera. (2) Among the drosophilids examined, the arrangement of the papillae in the rectal pouch is in two rows, opposite one another, except in Cryptochaetum, in which the papillae are arranged in a rosette. (3) The shorter or more globular papillae tend to be found in the so-called more primitive species or groups. Most fungus-visitors, including Mycodrosophila, Hirtodrosophila, and members of the quinaria group, show comparatively elongated papillae.

Okada, T. Convolution of the mid-intestines of adult drosophilid flies.

The manner of coiling of the proximal intestine was comparatively studied in 77 species of drosophilid flies belonging to 12 genera. As a rule, the coils of the anterior and posterior halves are opposite in direction but unequal in number. As has been known, so-called primitive species usually have smaller numbers of coils than advanced ones. It was also found that sap- or fungus-feeders tend to have larger numbers of coils than fruit-feeders.

Oshima, C. Genetic studies on DDT resistance in wild and mutant strains of D. virilis.

DDT resistance was investigated in 18 Japanese and American wild strains and 13 mutant strains. About thirty adult flies, aged 4-5 days, were put into a small glass tube, in which a filter paper (2.5 x 6 cm<sup>2</sup>), impregnated with 0.25 mg of DDT and 0.3 ml of water, was stuck around the glass tube near the bottom. After 24 hours, the mortality of flies was determined. Under these conditions, every wild and mutant strain showed about 80%-95% mortality, except v es pe and st B pe, which gave about 15% mortality--a high resistance to DDT. At first this resistance seemed to be controlled by polygenes. But data obtained on the progeny of resistant and sensitive strains suggest that a major gene is linked with the eosinoid (es) and peach (pe) genes, located on the fifth chromosome of D. virilis. It is an interesting fact that this fifth chromosome seems to be homologous to the right arm of the second chromosome of D. melanogaster, in which the existence of a DDT-resistance gene has been confirmed by M. Ogaki and M. Tsukamoto.

Oshima, C., and Taira, T. Further studies on the population genetics of dimorphism of color pattern in D. rufa.

Since last year (see DIS-26, p. 116) we have continued the study of populations of D. rufa, a species which has a dimorphic color pattern of the last abdominal segment in female flies. In both the Asakawa (near Tokyo city) and the Kochi (Shikoku island) districts, D. rufa appeared in May and seemed to reach its maximum number in September. The frequency of light-type flies (genotype d/d) was about 13%-14% of the total population number in September. Although no remarkable

seasonal change was observed, the frequency of light-type flies seemed to decrease gradually from May to September. In these natural populations, other species like D. lutea, D. auraria, D. montium, D. ficusphila, and D. imigrans were mingled with D. rufa.

Homozygous light-type flies (d/d) were mixed in large quantities with homozygous dark-type flies (D/D) in a population cage. About 100 days from the start, the frequency of d/d began to decrease gradually; equilibrium was reached about 500 days later. Within this time, the frequency of light flies became about 30% and that of dark flies about 70% of the total population.

Although the following relation of genotypes,  $D/d > D/D > d/d$ , was found in natural populations, the relation in artificial populations was  $D/d > d/d > D/D$ . Both kinds of population showed balanced polymorphism, because the heterozygous flies (D/d) always had the highest adaptive value. Such a phenomenon of heterosis could be explained by differences in the mating abilities of males of the different genotypes. The mating ratio of ♂ D/d : ♂ D/D : ♂ d/d was 1.00 : 0.82 : 0.38, and there was a similar tendency in females. No morphological differences were found in the sexual organs of males of the different genotypes, but a significant difference was found in the number of peg-like bristles on the egg-guide in females. The mean values for bristle number in ♀ d/d, ♀ D/D, and ♀ D/d were  $17.228 \pm 0.094$ ,  $14.767 \pm 0.090$ , and  $15.767 \pm 0.093$ .

The fact that light-type flies (d/d) had higher adaptive value than homozygous dark flies (D/D) in an artificial population was demonstrated by the observation that larvae of the former type were superior to those of the latter in a crowded population of larvae.

When D. rufa was cultured with D. ficusphila in a population cage, the former was superior to the latter in adaptability to these artificial conditions, but the rate of increase of dark-type flies seemed to be suppressed as compared with the rate of increase in a population containing only D. rufa.

Prevosti, A. Two newly introduced species of Drosophila found in Europe.

In domestic habitats of Barcelona, D. ananassae Dles. and D. mercatorum Patt. and Wheeler have been found. The cosmopolitan D. ananassae had already been

found in the eastern part of the Palaearctic region, but in the literature no records have been found for Europe. D. mercatorum seems to be a species that is becoming cosmopolitan, recorded in Nearctic, Neotropical, and Australian regions; in Barcelona it is rather common in domestic habitats. The karyotype corresponds to D. mercatorum mercatorum and crossability is unlimited with both D. m. mercatorum and D. m. pararepleta.

Redfield, Helen. The effect in D. melanogaster of the presence of an extra Y on crossing over in the mid region of chromosome 3.

Earlier data of Schultz and Redfield suggest that differences shown between experiments designed to study the effect of the Y chromosome on crossing over in the centromere region of chromosome 3 might be due to the presence of undetect-

ed third-chromosome inversions in some of the crosses. Accordingly, the following new crosses were undertaken, making use of known inversions in 3, and of the genes  $ri$  and  $p^P$ , just to the left and right, respectively, of the spindle fiber attachment, and  $Sb$ , some 10 map units to the right of  $p^P$ . Females of the composition  $ri\ p^P\ Sb$ /Payne were first tested; they involved no Y and no second-chromosome inversion. These gave standard crossover values for females heterozygous for the Payne inversions: mothers of age 2 to 6



days ( $N = 2580$ ) gave  $ri-p^D = 0.62$  and  $p^D-Sb = 0.39$ . The same mothers of age 7 to 11 days ( $N = 1945$ ) in subcultures gave  $ri-p^D = 1.03$  and  $p^D-Sb = 1.03$ . A second set of mothers contained in addition the second-chromosome inversion  $Plum^2$ ; some of them had an extra Y chromosome, whereas their sisters did not. These females furnished the following values for the first cultures. No Y;  $Pm^2/+$ ;  $ri\ p^D\ Sb/Payne\ \text{♀♀}$  ( $N = 5353$ ) gave  $ri-p^D = 1.4$ ,  $p^D-Sb = 5.2$ . Y;  $Pm^2/+$ ;  $ri\ p^D\ Sb/Payne\ \text{♀♀}$  ( $N = 1710$ ) gave  $ri-p^D = 2.3$ ,  $p^D-Sb = 6.2$ . The subcultures showed similar results. No Y;  $Pm^2/+$ ;  $ri\ p^D\ Sb/Payne\ \text{♀♀}$  ( $N = 2687$ ) gave  $ri-p^D = 1.6$ ,  $p^D-Sb = 4.5$ . Y;  $Pm^2/+$ ;  $ri\ p^D\ Sb/Payne\ \text{♀♀}$  ( $N = 1472$ ) gave  $ri-p^D = 3.3$ ,  $p^D-Sb = 7.8$ . Thus the proportion of crossovers for the sensitive region of the third chromosome from females containing one set of Payne inversions is approximately doubled by the presence of  $Plum^2$  and quadrupled by the presence of both  $Plum^2$  and a Y.

Sandler, L. The high rate of nondisjunction and low rate of exchange in the euchromatic distal X segment of the  $T(1,4)B^S$ .

A mating of females heterozygous for  $In(1)sc^8$ ,  $f\ v\ cv$ , and  $T(1,4)B^S$  to  $y\ w.Y^S/Y^{1c}$  males gave the following results:  $+ \text{♀♀} = 1711$ ;  $sc^8\ f\ v\ cv\ \text{♂♂} = 1085$ ;  $T(1,4)B^S\ \text{♂♂} = 1433$ ;  $y\ w\ B^S$  (hyperploid)  $\text{♂♂} = 533$ ;  $sc^8\ f\ v\ cv\ B^S$  (hyperploid)  $\text{♂♂} = 3$ ;  $B^S\ \text{♀♀} = 1968$ ;  $y\ w$

$\text{♂♂} = 21$ ; and 7 crossover males.

The  $y\ w\ B^S$  hyperploid male class represents instances of nondisjunction of the euchromatic X segment of the translocation from the  $sc^8$  X chromosome. Since these males are possibly somewhat inviable, the number of recovered cases (333) is probably an underestimate. This high frequency of nondisjunction in addition to the low frequency of recovered double exchanges (7) suggests that euchromatic pairing attraction may be weak, since most of the X-chromosome euchromatin (from  $y$  to the region of  $B$ ) is available for pairing.

A similar cross in which the  $sc^8$  X chromosome had been replaced by one carrying the  $dl-49$  inversion ( $y\ Hw\ m^2\ g^4$ ,  $dl-49/T(1,4)B^S \times y\ w.Y^S/Y^{1c}$ ) gave 576  $y\ \text{♀♀}$ , representing cases in which the euchromatic X segment of the translocation had disjoined from the  $dl-49$  X chromosome, and 275  $y\ w\ B^S$  (hyperploid)  $\text{♂♂}$ , representing those cases in which the euchromatic segment and the  $dl-49$  X chromosome had not disjoined. This would indicate that the high rate of nondisjunction in the case involving the  $sc^8$  X chromosome was not a consequence of disjunctional difficulties due to the presence of the long inversion.

Scheltgen, Elmer, and Cole, Kathleen H. The effect of pressure on rate of mutation in D. melanogaster.

D. melanogaster eggs of different ages were subjected to pressures from 5200 to 9000 pounds per square inch for various lengths of time in a hydrostatic pressure apparatus.

A pressure of 5200 to 5500 pounds per square inch at a temperature of  $33^\circ\text{C}$  for 20 minutes on eggs 13 to 17 hours old was most effective, since it caused a delay in the hatching of the eggs, a varying sex ratio in the offspring of the treated parents, and a number of abdominal abnormalities. Eggs treated at a very early stage, 0-4 hours, were severely affected, only 5% hatching. Abnormalities of the antennal segments and abdomen were caused by a pressure of 5500 pounds per square inch for 20 minutes on eggs of 17-21 hours; only 60% of these eggs hatched after the treatment. Pressures of 5200 to 5800 pounds per square inch on eggs of 0.5 to 3.5 hours and 13.5 to 17.5 hours prolonged the egg stage two and four times that of the controls, respectively.

Scossiroli, Renzo E.

Advancing a plateau by selection in irradiated populations of D. melanogaster.

The work on selection under X-ray irradiation, of which a short report was given in DIS-26, has been carried further. Previous selection for high number of sternopleural hairs had brought a population to a plateau

of selective response at a level of 27 hairs. From this population, two untreated (controls) and two treated (3000 r-units each cycle of two generations) lines were derived and selected for the same character. The irradiated lines exhibited an immediate response to selection, reaching a new plateau at the twenty-first cycle (about 42 sternopleural hairs). The control lines remained at the level of the original plateau (23 hairs at the twenty-first cycle). The irradiated lines exhibited a larger standard deviation and coefficient of variation of number of sternopleural hairs than the control lines. The efficiency of selection in the irradiated lines can therefore be attributed to increased variability. The irradiated lines also exhibited a marked increase in sterility (number of sterile matings) and a strong decrease in fertility (number of offspring per mating) as compared with the control lines.

Special tests showed a direct relationship between the selected character, sterility, and reduced fertility. The best-fitted flies were those with a hair number close to the mean of the line, and the least-fitted were those with extreme numbers of hairs. It therefore appears that the reduced fitness of the irradiated lines cannot be attributed exclusively to the effect of deleterious mutations produced by X-ray treatment. From the experimental data it may be concluded that X-ray treatments were efficient in producing new variability in the polygenic system related to the selected trait, and that artificial selection was able to utilize this increased variability. The experiments are being carried further.

Scossiroli, Renzo E.

Selection under irradiation for low number of sternopleural hairs in a population of D. melanogaster plateaued for the selected trait.

Four lines were derived from a population previously selected for low number of sternopleural hairs in which a plateau had been reached at a level of 14.7 sternopleural hairs. Two of these new lines were treated with doses of 3000 r-units each cycle of two generations,

and selected for low number of sternopleural hairs. The other two were selected for the same trait but without X-irradiation. Neither of the untreated lines showed any response. Only one of the treated lines showed a reaction to the selection pressure, reaching a new plateau at a level of 13.7 hairs. The other treated line remained at the level maintained by the untreated lines. No remarkable increase of variability in terms of standard deviations was noted. Increase of sterility and decrease of fertility were observed.

Owing to the lack of progress shown by the untreated lines and by one of the treated lines, experiments were performed to test for the presence of heritable variability. It was found that in spite of the lack of progress a good part of the observed variability was genetic in source, and that the heritability in the treated lines was much higher than that in the untreated lines. The lack of progress was thus not due to absence of genetic variability of the selected trait. Furthermore, the X-ray treatments were efficient in building up new genetic variability, which was accumulated by artificial selection without response at the phenotypic level.

Sobels, F. H., and Basden, E. B.  
D. polychaeta Patt. and Wheeler  
in Europe.

The first European specimen of D. polychaeta known to us is a female caught by Miss E. L. M. J. Hoessels, 7/27/51, at the



Geul stream, South Limburg, Netherlands, 160 km from the sea, during the first author's survey of Dutch *Drosophila* species. Most strikingly, this specimen was trapped in scattered woodland remote from houses. Patterson and Wheeler (1943), on the other hand, recorded the species only on banana wharfs near Galveston, Texas, but assumed it to have immigrated from South or Central America. Another record is from the Hawaiian Islands and Guam (Patterson, pers. comm.). The second author has seen the following specimens from ships at Liverpool, England. Ship A: 1 female (dead), 5/7/52; 7 males, 5 females (alive), 1/15/53, the first with a cargo of cocoa and copra loaded on the Gold Coast, the ship being on a regular West Africa run. A culture from these is now maintained. Ship B: 1 female (alive), 10/28/52, on a regular Malaya-Liverpool run, on this occasion with Malayan logs. Ship C: 2 males, 1 female (dead), 3/18/53, on a West Africa-U.S.A. run for the last three years, but this West African cargo was carried to Liverpool. The last record suggests an introduction route for this species into the United States.

Spiess, E. B. *Drosophila* from Yosemite National Park, California.

During the latter half of July and the first half of August, at four localities from 5000' to 8000' on the Tioga Pass road, flies were collected for the purpose of replenish-

ing stocks of *persimilis*. The various species encountered were as follows. *D. pinicola* and *D. occidentalis* were especially common in tall timber areas, and when extremely common occupied traps to the exclusion of members of the *obscura* group. *D. nigrohydei* occurred rarely at 6000' and 7000'. *D. azteca* was common up to 6000', more rare at 7000', and not found at all at 8000'. *D. persimilis* and *D. pseudoobscura* occurred with equal frequencies at 5000', but at 8000' the frequency of *persimilis* was about six times that of *pseudoobscura*. Salivary analysis has been completed only for the highest locality, where frequencies of gene arrangements of the third chromosome are as follows: Whitney, 87.2%; Klamath, 7.3%; Mendocino, 2.9%; Standard, 1.6%; and Sequoia, 1.0%.

Suzuki, K., Momma, E., and Makino, S. Species of *Drosophilidae* living on plants.

In order to find out which species of the *Drosophilidae* live or feed on plants, flies were collected on the following three species of plants: the trefoil (*Cryptotaenia japonica*), the clover (*Trifolium repens*),

and a kind of knotgrass (*Polygonum Hydropiper*). The collections were made with the use of a net at the Botanical Garden and the Farm of Hokkaido University, Sapporo, for a period ranging from June to September, 1953. The determination of the species was made in adult flies. The results are shown in Tables 1 to 3.

Table 1. Flies obtained on *Cryptotaenia japonica*

	June	July	Aug.	Sept.	Total
<i>D. nipponica</i>	44.0%	30.5%	53.0%	64.9%	59.6%
<i>D. nigromaculata</i>	14.6	17.3	11.7	4.0	6.8
<i>D. auraria</i>	0.0	4.3	5.9	14.1	11.0
<i>D. transversa</i>	0.0	0.0	0.0	2.0	1.4
<i>D. megaloplectinata</i>	9.7	0.0	0.0	0.0	1.1
<i>Scaptomyza</i> sp.	14.6	39.2	20.6	6.7	11.0
<i>Scaptomyza</i> sp.	17.1	8.7	8.8	8.0	9.1

Table 2. (see next page)

Table 2. Flies obtained on Trifolium repens

	June	July	Aug.	Sept.	Total
<i>D. nipponica</i>	32.4%	41.7%	40.2%	45.8%	39.2%
<i>D. nigromaculata</i>	1.8	8.3	1.3	5.1	3.1
<i>D. transversa</i>	0.0	1.7	0.7	0.0	0.5
<i>D. histrio</i>	0.9	0.0	0.0	0.0	0.3
<i>D. auraria</i>	0.0	0.0	2.7	0.0	1.0
<i>Scaptomyza</i> sp.	64.9	48.3	52.4	49.1	55.0
<i>Scaptomyza</i> sp.	0.0	0.0	2.7	0.0	1.0

Table 3. Flies obtained on Polygonum Hydropiper

	June	July	Aug.	Sept.	Total
<i>D. nipponica</i>	11.8%	10.4%	38.5%	73.3%	40.0%
<i>D. nigromaculata</i>	11.8	50.7	30.8	11.1	25.7
<i>D. auraria</i>	2.9	1.5	5.1	1.1	2.2
<i>D. transversa</i>	0.0	1.5	7.7	6.7	4.3
<i>D. megaloplectinata</i>	0.0	1.5	0.0	0.0	0.4
<i>Scaptomyza</i> sp.	73.5	34.3	7.7	3.3	23.5
<i>Scaptomyza</i> sp.	0.0	0.0	10.3	4.4	3.5

Takada, H., and Makino, S.  
Distribution in Hokkaido of  
an unrecorded species close  
to *D. busckii*.

An unrecorded species close to *D. busckii*  
found in Mt. Taisetsu was described in  
DIS-26. Further observations revealed  
that this species inhabited in various  
localities in Hokkaido, as shown in the

table. According to the advice of Dr. M. R. Wheeler, of the university of Texas, we wish to name this species *D. alboraris*. Several stocks of this species have been kept in our laboratory. In addition, another kind of *Drosophila*, close to this species but different in the structure of the genital organ, has been found in the forest of Mt. Maruyama and Mt. Asahidake. The morphological study of this species is in progress.

Locality	♀	♂
Imagane	-	7
Maruyama	3	1
(Sapporo)		
Asahidake	-	2
Nopporo	9	8

Takada, T., Makino, S., Momma, E., and Suzuki, K. Two rare species of *Drosophila* from Hokkaido.

(1) *D. megaloplectinata* was obtained in large numbers in Sapporo during the period from June to August. The flies were collected by net-sweeping on the following plants, *Cryptotaenia japonica*, *Polygonum*

*Hydropiper*, *Trifolium repens*, *Smilacina japonica*, and *Torilis Anthriscus*.

(2) The species to be identified as *D. helvetica* of the obscura group was collected in the forest of Mt. Asahidake at an altitude of 1060 m, by the use of banana traps. The flies collected were 4 males. The determination of the name is uncertain now. Their characteristics are as follows. Arista with seven branches, two below in addition to terminal fork. Antennae brownish, third joint brown. Middle orbital one-third anterior, one-quarter posterior. Second oral bristle about one-half first. Only one prominent bristle on each palpus. Cheeks light brownish, their greatest width about one-fifth the greatest diameter of the eyes. Acrostichal hairs in six rows, no prescutellars. Sterno-index 0.4. Abdominal segments brownish, each segment with slightly dark brownish black band. Sex comb of two black stout bristles on



the inner distal surface of first tarsal joint of prothoracic leg, a black stout bristle on the same surface of second tarsal joint of prothoracic leg. Wings clear, veins brown. Costal index about 2.8; fourth vein index about 2.2; 5c index about 1.5; 4c index about 1.3. Phallosomal index about 0.9. Testes in a spiral of about three gyres.

Tantawy, A. O. Selection for long and short wing length with different systems of mating.

This experiment was designed to study the response to selection with different systems of mating. Three different systems of mating were used; brother-sister, double first cousins, and outbreeding. In each

system, parallel selection lines for long and short wing length have now been continued for fourteen generations. All the selected lines are treated similarly to ensure the same environmental conditions. The response to selection under each of the three different systems is presented in the table in terms of deviations from a control stock maintained by mass mating under the same environmental conditions. As both sexes of each system show almost the same general trend, their deviations from controls have been averaged. The unit of measurement is 0.01 mm.

Generation number	<u>Brother-sister</u>		<u>Double-cousins</u>		<u>Outbreeding</u>	
	Long	Short	Long	Short	Long	Short
1	0.46	-2.48	0.72	-0.71	2.12	-1.25
2	1.24	-4.36	0.85	-2.21	1.76	-2.51
3	1.58	-7.61	0.44	-2.02	1.99	-7.38
4	2.94	-6.02	3.00	-0.77	4.30	-7.63
5	2.04	-11.50	0.11	-5.95	1.52	-10.42
6	4.68	-10.29	1.31	-7.37	1.42	-9.85
7	3.47	-14.90	1.61	-8.34	1.61	-14.06
8	1.91	-11.11	1.51	-6.48	2.62	-12.15
9	3.24	-4.17	2.31	-4.69	3.83	-10.47
10	1.93	-11.48	1.54	-6.90	4.82	-11.78
11	1.83	-11.66	2.55	-6.09	4.72	-15.17
12	1.83	-12.38	0.29	-9.40	3.57	-17.80
13	2.24	-15.11	0.82	-11.53	3.31	-19.23
14	0.53	-16.26	0.21	-9.22	3.91	-20.64

These results clearly demonstrate that selection has been effective in all the systems of mating in high and low lines. Progress of selection in all the lines is more rapid in lines selected for short wing than lines selected for long wing. Lines maintained by the brother-sister and outbreeding systems show almost the same response to selection in plus and minus directions to the seventh generation, after which the latter system show a higher response than the former. Selected lines carried out by matings between double first cousins show an intermediate response to selection between the brother-sister and outbreeding systems.

The divergence between high and low lines maintained by brother-sister matings increases gradually from the first generation of selection to the fifth, after which it tends to stabilize. In this mating, the selected line for long wing shows two units above the controls and the line selected for short wing shows eleven units below the controls and then stabilizes at almost this response to selection. In the case of outbreeding, the divergence between the two selected lines increases gradually from the first selection generation to the fourteenth generation. At 25% and 50% coefficient of inbreeding, lines carried out by brother-sister matings display greater

response to selection, in both directions, than lines carried out by double-first-cousins mating.

Response to selection for wing length in all the different selected lines is accompanied by a change in thorax length in the same direction. This is to be expected from the high genetic correlation between them in the initial unselected stock. Effects of different systems of mating on various characters, such as heritability of wing and thorax length in the selected lines, egg production, hatchability, and so forth will be studied.

Thoday, J. M. A Notch-translocation cross demonstrating nondisjunction of chromosome 3 in D. melanogaster?

The following observations were made with the assistance of Mr. T. B. Boam. A Notch mutant was obtained as two granddaughters of an irradiated  $w^a$  male mated to  $ClB/w$  m f. The two flies were white-eyed and Notch-

winged. They were crossed to  $w$  stock flies, and from these crosses several lines were established which were used in selection experiments. Notch was of variable expression and limited, though high, penetrance. The eye color was the result of a  $V$  position effect, not a  $w$  deficiency. Both eye color and Notch expression could be enhanced or decreased by selection. The eye color position effect occurred with  $w^a N/w$  but not with  $w^a N/w^+$ .  $w^a N/w^a$  flies had paler eyes than  $w^a/w$  flies. Crosses of  $w^a N/w$  by  $w^+$  gave about 23%  $w^+$  sons; those tested were fertile, showing that the Notch flies carried  $Y$ . The cross  $w^a N/w^a$ ,  $In(1)r^{49j}$  x  $w$  gave 50%  $w$  sons. (See  $r^{49j}$  in New Mutants section.)

Salivary preparations indicated an X-3 translocation, exchanging X tip for 3L. Dr. H. Slizynska has kindly re-examined these preparations and reports that the break in X is between 3C1 and 3C6; 3C6 and 7 (Notch bands) are present in the proximal part of X. 3C2,3 (white band) is absent from the proximal part of X, but may be present in the translocated tip. The break in 3 is in 80E, F--probably at the beginning of 80F (hence in 3L).

Shortly after these preparations had been made the Notch stocks were lost as the result of an unfortunate accident. Before this, a cross had been made to test the first salivary observations. The cross was  $w^a N f/w f$  x  $ss bx$ . The  $F_1$  results were as follows:

	+	white-forked	spineless-bithorax	Notch	white-Notch
♀	57	-	-	16	2
♂	1	40	8	-	-

No explanation seems plausible for the non-forked white-notch females, but it seems difficult to avoid the conclusion that the spineless-bithorax males (at least some of which were fertile) were the result of fusion of eggs having  $Y$ , no  $X$ , and no chromosome 3, and sperm having two third chromosomes. If so, then the  $ss bx$  stock shows high nondisjunction for chromosome 3. The loss of the Notch stocks precluded further tests. The cross  $D/LVM$  x  $ss bx$  gives negative results. Should anyone obtain a similar translocation, the author would be grateful for stocks so that the  $ss bx$  stock may be tested further.

Ulrich, Hans. Induction of "abnormal abdomen" by partial X-raying of *Drosophila* eggs.

By X-raying single portions of eggs, 0.1 mm in length--that is, single fifths of the eggs--abnormalities of the abdominal segmentation were induced, the percentage of abnormal flies depending on the age of the eggs when treated and on the position of the irradiated portion (see DIS-25, p. 131). Two sensitive periods, only



partially separable, were found, at ages 1-2 and 4-5 hours (oviposition and development at 25°). In both cases, the resulting abnormalities are manifested already in the larva. In most of the individuals in question, they are manifested again in the adult, whereas the remaining ones control larval abnormalities during metamorphosis.

At the age of 1-2 hours the egg still seems to react to irradiation as a whole; the position of the abnormality on the adult abdomen is not clearly correlated with the position of the irradiated portion of the egg. The type of abnormality induced at this early stage corresponds, as a rule, in larvae as well as in flies, to that occurring after treatment of eggs with high temperature during three sensitive periods (oocyte, 2-3 hours, and 9-10 hours; see DIS-26, p. 128) and to that characteristic of several mutants described by Zimmermann (DIS-26, p. 69), especially atypical course, or partial or complete absence, of one or several segmental borders.

At the age of 4-5 hours the reaction of the egg to irradiation is a local one. Only treatment of one of the last two fifths of the egg results in a relatively high percentage of abnormal individuals; and the position of the irregularities corresponds to the position of the irradiated portion. Owing to the blastokinesis, irradiation of the last fifth of egg causes an irregularity in the anterior part of abdomen, whereas irradiation of the next-to-the-last fifth induces an irregularity in the posterior part. The irregularities are of another type than that which occurs after irradiation of 1-2-hour eggs. They concern the structure of segmental borders rather than their course.

Partial X-raying of eggs at later stages, up to hatching, does not affect the segmentation of larvae, but causes a third type of abnormality of the adult abdomen. Occasional tergites or sternites of the flies are abnormal in shape, and tergites cover their segments only incompletely. The position of this abnormality correlates exactly with the position of the irradiated portion of the egg. No sensitive period for the production of this type of abnormal abdomen can be designated. Apparently the X-rays affect the "hypodermal histoblasts" in the embryo, which later during metamorphosis form anew the hypoderm of the imago.

Ulrich, Hans. Single event in killing of *Drosophila* eggs by X-rays?

*Drosophila* eggs were X-rayed with different doses at the age of 1-2 hours, 2-3 hours, 3-4 hours, and so forth (oviposition and development at 25°). In every case the percentages of nonhatching (i.e., killed) eggs increased with dose in an S-shaped curve, the curves growing steeper with increasing age of eggs at time of treatment. According to the target theory in radiobiology, the dose-frequency curves obtained may be formally interpreted as due to killing of the eggs, at every stage tested, by several hits--the required number of hits increasing with age. The dose necessary to kill 50% of eggs--that is, their resistance to radiation--increases simultaneously with the number of hits. Langendorff and Sommermeyer had concluded previously that so-called 4-hour eggs (real age,  $2.75 \pm 1.25$  hours) are killed by a single hit. This statement, which is referred to repeatedly in biophysical papers interpreting the results of treatment of *Drosophila* eggs with different doses of various kinds of rays, is refuted by our findings and meanwhile has been corrected by Langendorff and Sommermeyer themselves.

Since the number of nuclei grows larger during embryological development, the increase of hit number with increase in age suggested that the eggs are killed by an effect of the X-rays on nuclei. Consequently it was to be expected that newly laid eggs, before cleavage, might be killed by a minimal

number of hits, perhaps by a single hit. Actually, X-raying of eggs 0-15 or 0-10 minutes old yielded a dose-frequency curve that differed only insignificantly from the theoretical single-event curve. The 50% dose for this stage is somewhat higher than that for the 1-2-hour eggs, which thus represent the most sensitive stage.

The decisive importance of the nucleus to the event of killing by irradiation was proved by partial X-raying of eggs at the age of 15-30 minutes, the youngest stage that could be irradiated partially. After separate treatment of the 1st, 2nd, 3rd, 4th, and 5th fifths (counted from the anterior pole)--each fifth being 0.1 mm in length--with a constant dose of 1000 r, the percentages of killing of the irradiated eggs were 3%, 65%, 16%, 3%, and 2%, respectively. Without irradiation about 3% died. Accordingly, only that part of the egg that contains the two pronuclei (or at most 2 to 4 cleavage nuclei) is radiosensitive. It may be concluded that the single event which apparently can kill the egg before cleavage, and probably only at this stage, affects the nucleus, perhaps by inducing a dominant lethal factor of some kind, for example a chromosomal aberration.

Weeks, Leo. Studies on the two subspecies, D. melanica melanica and D. melanica paramelanica.

The nature of certain morphological differences in the two subspecies, D. melanica melanica and D. melanica paramelanica has been studied. The difference in the shape of the penis apparatus as reported by

Miller (1944) was used as a criterion to differentiate between the males of the two subspecies. A difference in the shape of the spermatheca in the two subspecies has also been observed. The spermatheca of the subspecies melanica is more rounded and pointed at the distal end; that of the subspecies paramelanica is more rectangular at the distal end. This difference in the shape of the spermatheca was studied in melanica and paramelanica collected in Nebraska; in strains of melanica from Arizona, Texas, Florida, and Georgia; and in strains of paramelanica from Minnesota and Maine (kindly supplied by Drs. J. T. Patterson and D. F. Poulson). The criteria of the difference in the shape of the penis apparatus and the difference in the shape of the spermatheca have been used to determine the frequencies of the subspecies in the vicinity of Lincoln, Nebraska. The males from the collections were identified as to subspecies on the basis of the shape of the penis apparatus. Each female from the collections was put in a vial with food and allowed to produce offspring. The female was then examined and identified as to subspecies on the basis of the shape of the spermatheca. Several males and females of each female's offspring were identified as to subspecies, using the previously mentioned criteria. In all but a few questionable cases, the female offspring had the characteristic spermatheca shape of the female parent and the male offspring had the characteristic penis-apparatus shape of the males of the subspecies to which the female parent belonged.

From these collections, made from May through July, 1953, the frequency of melanica was determined to be 86.1 per cent and that of paramelanica 13.9 per cent. The number of melanica collected was 210 and the number of paramelanica 34. An effort has been made to establish the replacement zone of the two subspecies in the United States. Collections of wild populations were made during August and September, 1953, in Missouri, Illinois, Indiana, Kentucky, Tennessee, and Georgia. Both the subspecies were collected in Nebraska and Missouri; only paramelanica in Illinois, Indiana, and Kentucky; only melanica in Tennessee and Georgia. Both melanica and paramelanica were also observed in collections from Virginia (furnished by Dr. Max Levitan).



The following table presents data on frequencies of the two subspecies and the number of *Drosophila* collected in the different states.

States*	<u>D. melanica</u>		Other <i>Drosophila</i>	Total
	<u>melanica</u>	<u>paramelanica</u>		
Nebraska	210	34	5808	6052
Missouri	10	2	1124	1136
Illinois	0	43	3154	3197
Indiana	0	47	3220	3267
Kentucky	8	0	1928	1936
Tennessee	57	0	3468	3525
Georgia	126	0	6654	6780

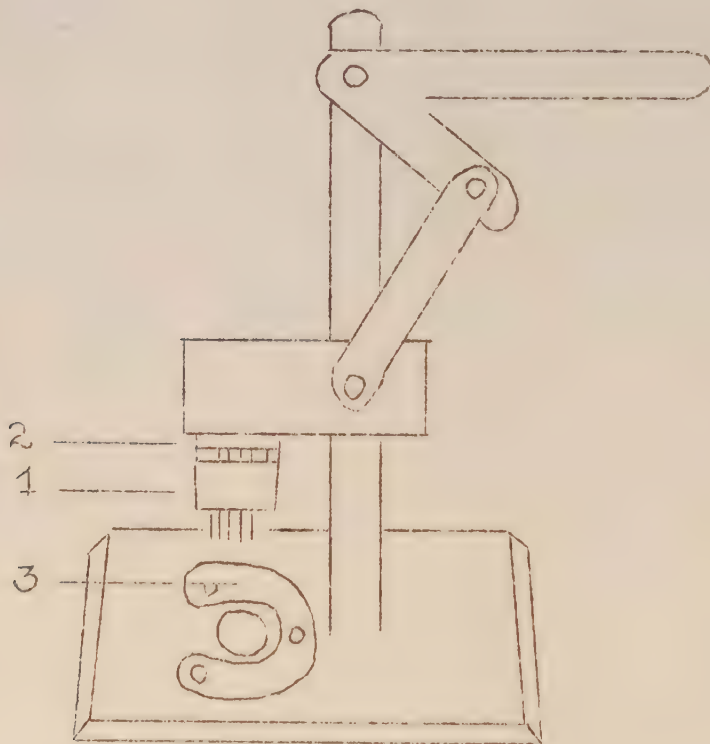
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\*Collections were made in Nebraska from May through July, 1953. Collections were made in the other states during August and September, 1953.

## TECHNICAL NOTES

Herskowitz, Irwin H., and  
Telfer, J. D. A device for  
punching holes in milk-bottle  
caps.

Excess moisture in culture bottles causes the sides to become wet and the food medium to become fluid, causing the death of many adults and difficulty both in clearing bottles of parents and in collecting newly emerged flies. In order that some of the excess water may evaporate, a device was constructed which punches a dozen and a half small holes in a cardboard bottle cap at a single stroke. Steel sewing-machine needles were pushed through a cork stopper that was about one-half inch shorter than the needles. The side of the cork (1) with the blunt ends of the needles was pushed onto a flower holder (2), which was lowered and also raised by moving a handle either up or down. The bottle cap was slipped beneath a horseshoe-shaped plate (3) which held the cap while the needles were punching the holes and were being withdrawn. Although the machine has been in use for several months no needles have had to be replaced, but if this is necessary the cork is easily removed from the flower holder and a new needle inserted. A diagram of this apparatus is shown below.



Laurence, Richard. A  
technique of collecting  
*Drosophila* eggs.

The following method has been used in collecting, counting, and determining the hatchability of *Drosophila* eggs, and is especially useful as a technique for studying lethals in the early stages of development.

First a hole is cut near the outer edge of the upper plate of a Petri



dish. The hole is made large enough to accommodate a tube 2.5 cm in diameter. This tube serves as the collecting chamber. In the lower plate of the Petri dish is placed a very thin layer of banana-agar food, which has been strained through eighteen-mesh screen to insure transparency. The flies are then placed in the tube. One end of the tube is plugged with cotton and the other end is inserted through the hole of the upper plate of the Petri dish and pushed into the clear medium. At the end of the egg-laying period, the cover of the Petri dish is removed, care being taken not to disturb the tube or flies. Next, the tube and the lower plate are together inverted, and when the tube is tapped with a finger the flies fall onto the cotton plug. Then the tube is quickly removed from the medium and pushed into a fresh position. The tube and the plate are turned right side up again. Before the upper plate of the Petri dish is replaced, the disk of food containing the eggs is transferred to a specially prepared black-background slide. This slide is made by placing a drop of black enamel on a glass slide and covering it with a large cover slip; this makes a perfect background for counting the eggs. After the eggs have been counted and charted, the disk of food is removed to a fresh vial of food. All moving of the disks is accomplished with the use of a short-bladed spatula. By this technique more than 100 eggs have been collected and counted within a short interval of time. The use of Moldex in the medium is suggested.

Oliveira, Henrique S.  
Sealing aceto-orcein  
salivary-gland temporary  
smears.

A difficulty commonly found in sealing smear slides is breakage of the seal and drying of the preparations when kept at low temperatures. To prevent these inconveniences, a new seal was devised. The composition of

the sealing medium is: beeswax 150 g  
rosin 40 g  
Sudan III 0.5 g

To prepare the medium, (a) the beeswax is melted; (b) the rosin is added to the melted wax and mixed at melting temperature, with care not to burn it; (c) after the beeswax and rosin have been mixed, the stain is added.

This seal, being plastic, does not break at low temperatures. Slides sealed by this method can be kept for a very long time at a low temperature without drying. After the preparations have been used the seal can easily be removed with a razor blade and the slides cleaned with sulphuric-bicromate solution.

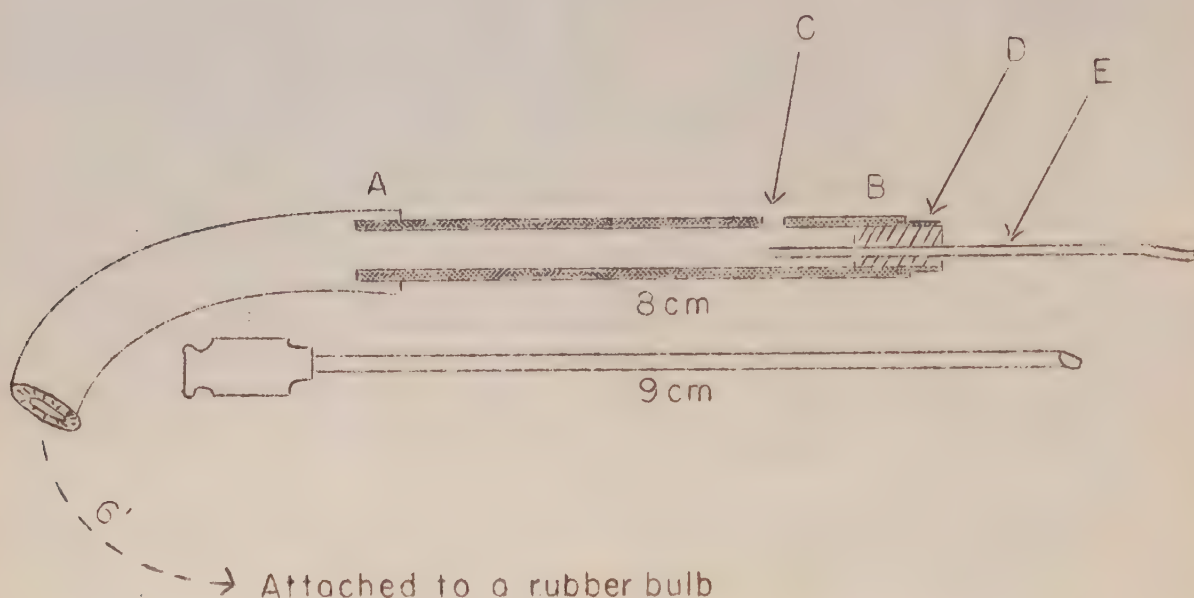
We found it very convenient to add a stain to the seal. The stain has the advantage of making the seal very visible, permitting a delicate sealing. It also helps one to see whether any air bubble has been left in the seal, and in this way helps to get a perfect sealing.

Rizki, M. T. M. A micro-  
injection assembly for  
Drosophila.

A simple method of mounting a micropipette has been adapted for various purposes such as microinjection of dyes or ink, transplantation of organs, and attempts to artifici-

ally inseminate Drosophila. A glass tube 8 cm in length with a hole on one side (C) is fitted with a rubber plug (D). The correct size rubber plug can be made from a rubber stopper with the use of a cork borer. For assembly a B-D 17 hypodermic needle is inserted at A and forced through the rubber plug at B. A glass micropipette is then inserted into the bore of the hypodermic needle, and the hypodermic needle is carefully withdrawn, leaving the glass needle (E) in place as shown in the diagram. The end of the glass holder A is attached to rubber tubing, which is fitted with a rubber bulb at the other

end. The rubber bulb can be pressed by foot and the pressure in the injection syringe can be controlled by opening and closing the hole in the glass holder with a finger.



Sang, J. H. A method for sterilizing *Drosophila* eggs.

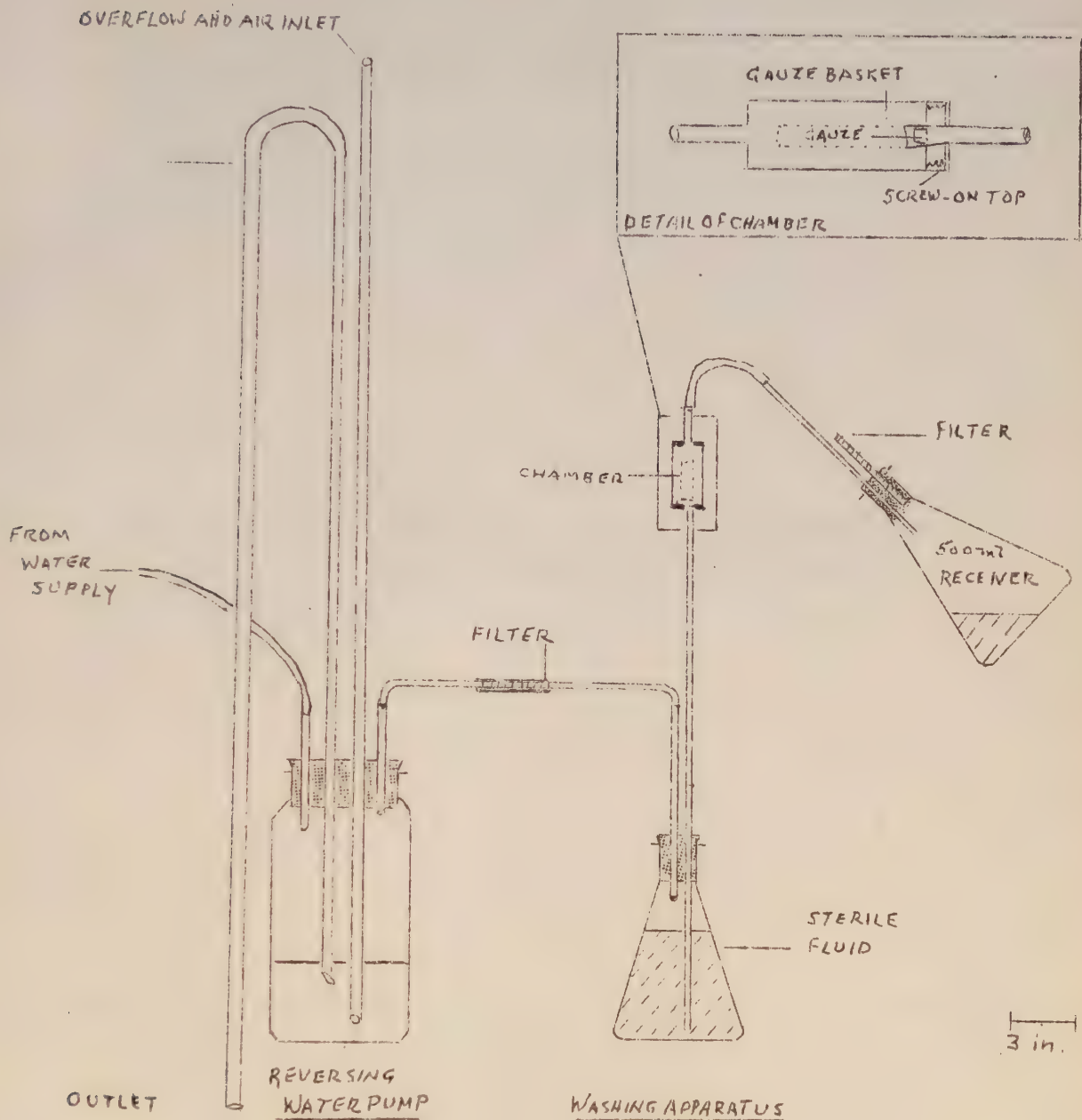
Current methods of sterilizing *Drosophila* eggs are usually unsatisfactory when large numbers of larvae are set up in each cul-

ture, and especially so when the proportion of yeast spores is high in the bottles containing the parents. A method depending on the dechoriation of eggs and removal of the freed chorions by repeated washing has been devised to overcome this. The first 1000 cultures set up, each containing 40 larvae, showed an infection rate of 4.7%.

The routine now adopted is: (1) Free eggs from oviposition medium and expose to 0.5%  $\text{HgCl}$  for 15 minutes in beaker. (2) Dechorionate in beaker with fresh 1% chloride of lime solution, decant, and wash with water. (3) Transfer eggs to wire basket of washing apparatus, all of which has been previously sterilized by autoclaving (see diagram). (4) Wash with sterile water, 1% Cetavlon (cetrinide) and sterile water, using about 400 ml of each and regulating flow so that about 20 ml of each fluid is passed into the receiver at a time. (5) Transfer eggs to sterile agar plates, using the paper spoons described by Begg and Sang (Science, 1950), under sterile conditions. (6) Set up cultures with larvae within 2 hours of hatching. The entire sterilization takes about two hours, and many thousands of eggs can be handled at one time. Step (1) is necessary only when the bottles containing the parents are heavily contaminated with bacteria. Full details of the method will be published elsewhere.

(see diagram next page)





Thomson, J. A. Population-cage windows.

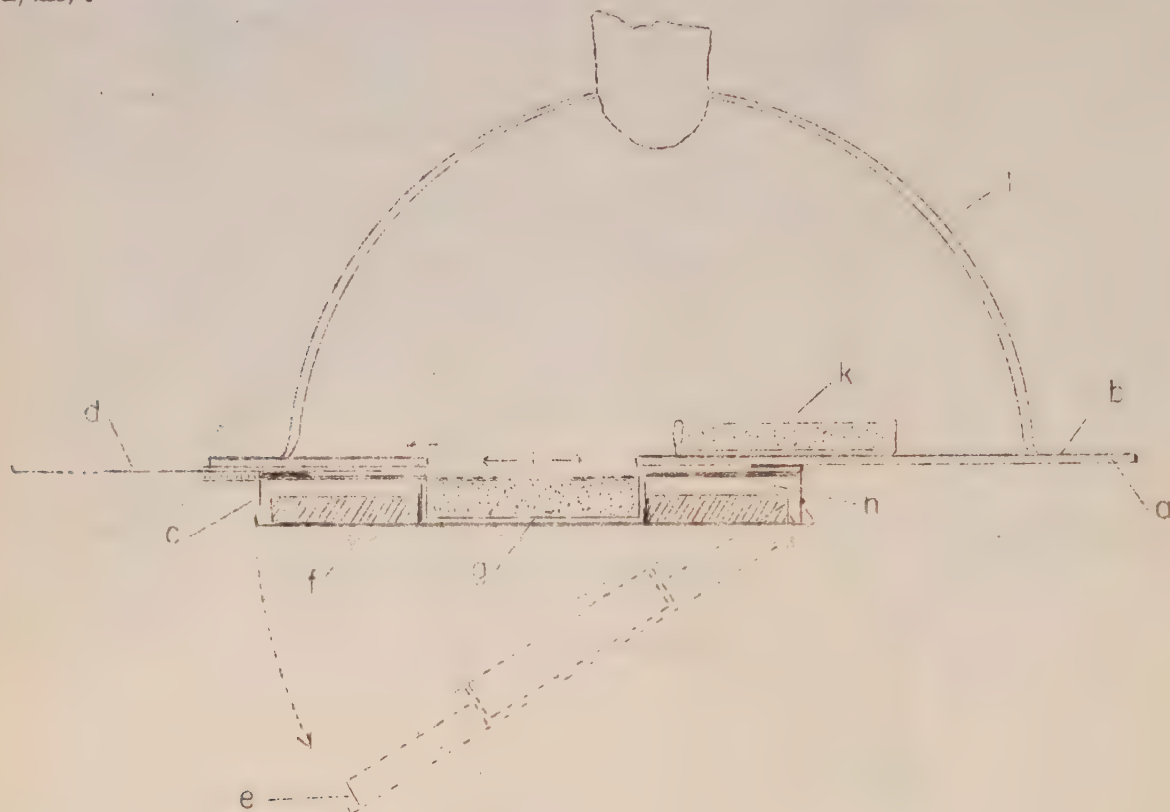
that it becomes difficult to observe the contents of the cage. The roll of cellophane is fed through from one end of the cage to the other and is pulled taut against the under side of the window. It may be kept in place by means of cellulose tape. As soon as the cellophane strip has become mired with excreta (after about 6 to 10 weeks in our cages), it is loosened at both ends and a fresh strip fed through. If two people work together, it is possible to keep the strip taut against the glass so that few, if any, flies get trapped between the two surfaces. The soiled strip of cellophane can then be torn off and discarded.

A continuous strip of cellophane 6 inches wide is a simple way of preventing spots of excreta from so covering the glass window

Ulrich, Hans. A convenient method of collecting large numbers of *Drosophila* eggs homogeneous in age.

Newly hatched male and female flies are placed in bottles containing fresh food medium with yeast, and kept at 25°. Three to four days later the flies are collected and placed without being etherized under

the glass bell of an apparatus whose structure is shown in the figure below (ca. 1/2X).



a = metal plate. b = filter paper. c = film-pack container. d = slide, partially removed. e = cover of the container, opened. f = wooden plate with a circular hole for the vial (g). g = egg-laying vial; its height equals the inner height of the container minus h. h = thin metal plate with a circular hole, the diameter of which is a little smaller than that of g. i = circular hole in a and b, diameter equaling that of the hole in h. k = vial containing filter paper moistened with syrup-water as additional food for the flies. l = glass bell with an opening closed by a cotton stopper.

The vial (g) is filled with well-fermented food, the leveled surface of which is partially covered by a strip (preferably, duplicate strips) of black blotting paper, moistened with diluted vinegar. Upon this paper are lying several small pieces of moistened black paper, or a ladder-shaped piece cut from a film. When the slide of the film-pack container is removed, the flies may oviposit. If the food and the paper are sufficiently moist, the eggs are deposited nearly exclusively on the surface of the paper along the borders of the small pieces of paper or of the ladder-shaped piece of film. Thus, if these pieces are removed, the eggs are lying in rows and therefore can be counted easily without being touched. They may be subjected to agents such



as X-rays directly while lying on the paper. If this paper is double, the upper strip with the eggs may easily be removed from the lower one, and will not be smeared with food. By cutting the paper in pieces, or by shielding single rows in succession with lead, one may apply different doses to separate parts of an egg collection. Changing of vials can be done very quickly without troubling the flies. If the apparatus is well constructed and handled, the flies do not escape. The eggs can be removed easily from the paper without being injured; and they are not smeared with food or yeast, a fact especially important in the partial X-raying of eggs carried out by the author.

## NOMENCLATURE

Report of Lewis, E. B.,  
and Mislove, Rhoda F.

An attempt is being made to synthesize more satisfactory balancers than are currently available. As described elsewhere in this issue under "Melanogaster - New Mutants," new balancers for the second chromosome have already been obtained by repeated X-raying of a chromosome carrying both of the Cy inversions and the mutants  $al^2$ , Cy, and  $sp^2$ . The complex rearrangements which have been derived present a problem in nomenclature, since the conventional system of naming them soon becomes unwieldy. The following type of symbolism is proposed for handling such rearrangements. An X-chromosome multiple-break rearrangement is designated "First Multiple," symbol FM. As an example, FM1 has been chosen to signify the commonly used balancer carrying both the  $sc^8$  and dl-49 inversions, which otherwise require the cumbersome notation:  $Ins(1)sc^8, dl-49$ . SM and TM for "Second Multiple" and "Third Multiple," respectively, are the symbols proposed for complex balancers for the autosomes. By capitalizing both letters of the symbol, confusion with symbols for mutant genes should be avoidable. Mutant genes contained within the balancing chromosome are designated in the conventional way, as in the following example: SM2,  $al^2$  Cy  $lt^v$   $sp^2$ .



Alice Louise Bull is teaching at Mount Holyoke College, South Hadley, Massachusetts, where she will continue her investigations on the developmental effects of second-chromosome deficiencies.

Walter J. Burdette is on sabbatical leave from Louisiana State University School of Medicine and at present is a visiting investigator at The Chester Beatty Research Institute of the Royal Cancer Hospital in London.

Allen S. Fox is currently (1953-54) a Fulbright Research Scholar at the Istituto di Genetica, Pavia, Italy. During his absence, work in immunogenetics and physiological genetics is continuing in his laboratory at Ohio State University. Upon his return to the United States he will assume his new post as Associate Professor of Zoology at Michigan State College in East Lansing.

R. Milani, on leave from the University of Pavia, is at present in Rome, at the Istituto Superiore di Sanità, where he is engaged in researches on the genetics of Musca domestica.

Jeanne Coyne Mossige has as new address starting December 1, 1953: Det Norske Radiumhospital, Bestum, Oslo, Norway. She will be studying the effects of X-ray and betatron irradiation.

S. Ohba has left Tokyo Metropolitan University to take up a new post as Assistant Professor in the Department of Biology at the University of Okayama, where he will continue his work on ecological analysis of Drosophila populations.

Maxwell E. Power, of Kenyon College, Gambier, Ohio, is on leave of absence from his regular post and is lecturing at Queen Aliyah College in Baghdad, Iraq, under a Fulbright Grant. He will be back at Kenyon College next year, and will resume work on the nervous system of Drosophila.

Arvelighetsinstituttet, Universitetet, Oslo, has changed its name to: Institutt for Genetikk (Institute of Genetics).

Liverpool, England. Teaching and research in cytogenetics is now being developed in the University under the direction of Dr. J. H. Burnett. Current research is concerned with Drosophila and lower plants. Problems involved are: crop analysis and the role of yeasts in nutrition of wild Drosophila; culture and study of Drosophila which inhabit fungi; population genetics of higher fungi, marine algae, and ferns. It is possible for suitably qualified students to take M.Sc. or Ph.D. research degrees in genetics. Reprints, and back issues of DIS, would be appreciated, as library facilities are at present poor.

Tokyo Metropolitan University. The Faculty of Science, including the Department of Biology, has moved from Meguro-Ku to a new building at Setagaya-Ku.

Alexandria, Egypt. The Department of the Genetics of the Faculty of Agriculture, University of Alexandria, is establishing a laboratory for *Drosophila*. The staff of the Department will welcome any available reprints on *Drosophila* to help them in their research.

J. H. Burnett at Liverpool University (see Personal and Laboratory News) requests for their genetics library any reprints that are available.

R. Milani (Istituto Superiore di Sanità, Viale Regina Margherita 299, Rome), who has started a study of the genetics of the housefly, would greatly appreciate receiving reprints of papers on population genetics, mutations in nature, penetrance and expressivity, effect of inbreeding, intersexes, and gynandromorphs. Any information about genetical work or observations on the housefly or related organisms would be very helpful and greatly appreciated.

D. D. Miller of the University of Nebraska (Zoology Department) would appreciate receiving recently caught females or recently established strains of *D. athabasca* from either eastern or western North America.

G. Morpurgo (Istituto di Genetica, via Mezzocannone 8, Naples, Italy) urgently needs three stocks, possibly of *w*, one obtained with chemicals, one with X-rays, and a third spontaneous. He would appreciate receiving such stocks.

Drosophila bibliographies. Copies of "Bibliography on the Genetics of *Drosophila*"--Part I by H. J. Muller and Part II by I. H. Herskowitz--are available at 5s. (or \$0.70) and 2ls. (or \$3.00) each, either from Commonwealth Agricultural Bureaux, Farnham Royal, Slough, Bucks., England, or from I. H. Herskowitz, 101 Science Hall, Indiana University, Bloomington, Indiana.

Re-issue of additional DIS notes. E. Novitski reports that the initial supply of DIS notes 1-14 has been exhausted; more are being made up and should be available shortly. In addition, work has been started on a second set running from 15 to 24, inclusive. It is hoped that they will be completed by the time this notice comes out. The charge of one dollar per copy will remain the same. For the benefit of those not familiar with the costs involved in this sort of undertaking, I should like to point out that there is no profit from this charge and it has been possible to do the job only because of the generous contribution of time and energy by the graduate students in this department.



Irwin H. Herskowitz, Editor

D. = Drosophila; D.m. = Drosophila melanogaster

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Harrison, B. J. Selection and resistance to HCN.

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Matthews, P. Selection.

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Clayton, G. Graduate student. Selection.

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Morris, J. Graduate student. Selection.  
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Robertson, A. D.Sc. Quantitative genetics.  
Robertson, F. W. Ph.D. Selection.  
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Sen, B. K. Graduate student. Quantitative genetics.  
El-Shatoury. Graduate student. Development of pupal lethals.  
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Hollingsworth, M. J. Anatomy of subobscura mutants.  
Koske, T. Cytology of subobscura.  
Maynard Smith, J. Hybrid vigor in subobscura.  
Spurway, H. Genetics of subobscura.



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Haygarth Jackson, A. R. Research Assistant. Selection effects for sensory characters and quantitative characters.

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Bastock, Margaret. Analysis of the mating behavior of *D. melanogaster* and the effect of certain mutants (particularly yellow) upon it.

Cain, A. J. Demonstrator in Taxonomy.

Hudson, V. R. Demerec. Taxonomy and distribution of British *Drosophila*; crop analysis of species of the obscura group; analysis of ecological factors determining activity of wild *Drosophila*.

Sheffield 10, EnglandThe University, Departments of Botany and Zoology

Barker, J. F. Research student. Flexibility in natural populations.

Beardmore, J. A. Research student. Fitness in heterogeneous environments.

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Thoday, J. M. Lecturer. Chromosome breakage; fitness for heterogeneous environments.

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 Brunetto, A. Sc.D. Ambigua: salivary chromosomes.  
 Frizzi, G. Sc.D. Lecturer. Anopheles: population genetics.  
 Frumento, L. Sc.D. Ambigua: salivary chromosomes.  
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JAPANAnjo-Shi, Aichi

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Nakamura, K. (Dr.) Professor. Cytogenetic studies of lethal mutations.

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Falk, R. Research Assistant. *Melanogaster*: vitality mutations.

Lüning, K. G. Ph.D. Research Associate. *Melanogaster*: mutations.

Perje, Ann-Margret. Ph.Lic. Research Assistant. Salivary-chromosome analysis; cytogenetics and mutations of *D. funebris*.

Ramel, C. Research Assistant.

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Bertschmann, May. Graduate student. Influence of chemicals on development.  
Chen, Pei-Shen. Ph.D. Assistant. Physiology and development.  
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Schnitter, Marco. Graduate student. Physiological genetics of lethals.  
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Walker, Ilse. Graduate student. Parasitic wasps of *Drosophila*.

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Banach, Patricia A. Radiation effects.  
Fung, Sui-Tong Chan. Ph.D. *Melanogaster*: physiological effects of sex genes, chromosome reorganization.  
Gowen, John W. Ph.D. *Melanogaster*: crossing over, gene structure, and physiological action; heterosis.  
Haverland, Loren H. Graduate student.  
Hollander, W. F. Ph.D. Gene mutation.  
Stadler, Janice. M.S. *Melanogaster*: agents for mutations, heterosis.

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Glass, H. Bentley. Ph.D. *Melanogaster*: population genetics of erupt and suppressor-erupt; gene action of suppressor-erupt; radiation and oxygen-tension effects; effects of mutagens on females.  
Glassman, Edward. M.S. Graduate student. *Melanogaster*: chemical identification of suppressor-erupt substance.  
Hooker, Edith H. A.B. Research Assistant.  
House, Verl L. Ph.D. *Melanogaster*: development of venation.  
Plaine, Henry L. A.B. Graduate student and research assistant. *Melanogaster*: gene action of suppressor-erupt; tumor induction and formation; radiation and oxygen-tension effects.  
Ritterhoff, Rebecca K. B.S. Research Assistant. *Melanogaster*: effects of mutagens on females.  
Rogers, Palmer, Jr. B.S. Graduate student. *Melanogaster*: erupt and melanotic tumors.  
Young, William J. M.A. Graduate student. *Melanogaster*: effects of X-rays supplemented with infrared.

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tumors, morphogenesis.

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Davis, Charles G., Jr. Undergraduate student. Semilethals.

Rizki, M. T. M. Ph.D. Cramer Research Fellow. *Willistoni* and *melanogaster*: developmental genetics..

Hempstead, New York

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Polowczyk, Ed S. Graduate student. *Melanogaster*: development.

Warren, Katherine Brehme. Assistant Professor. *Melanogaster*: development.

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Barker, Barbara. Graduate student.

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Hartung, Ernest W. Ph.D. Associate Professor and Head of Department. Factors influencing tumor incidence.

Staugaard, Burton. Graduate student.

Knoxville, Tennessee

The University of Tennessee, Department of Zoology and Entomology

Townsend, J. Ives. Ph.D. Assistant Professor. Population genetics; marginal populations of *willistoni* and other species.

Lexington, KentuckyUniversity of Kentucky, Department of Zoology

Carpenter, John M. Ph.D. Professor. Biotic potential and environmental resistance; intra- and interspecific competition.

Lincoln, NebraskaThe University of Nebraska, Department of Zoology

Annan, Murvel E. M.S. Graduate student. Robusta: radiation.

Miller, Dwight D. Ph.D. Associate Professor. Affinis subgroup.

Weeks, Leo. M.A. Graduate student. Melanica.

Logan, UtahUtah State Agricultural College, Department of Zoology

Gardner, Eldon J. Ph.D. Professor. Melanogaster genetics.

Green, Herman L. B.S. Graduate student. Melanogaster genetics.

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Los Angeles, CaliforniaUniversity of California

Ball, Francis M. B.S. Senior Laboratory Technician, curator of species stocks, Department of Botany. Pseudoobscura: mutants.

Dagg, Martha. B.A. Graduate student, Department of Zoology. Melanogaster: lethals in translocations.

Epling, Carl. Ph.D. Professor, Department of Botany. Pseudoobscura: population genetics.

GoodSmith, W. M.A. Graduate student, Department of Zoology. Melanogaster: position effect and the brown locus.

Hinton, Taylor. Ph.D. Associate Professor, Department of Zoology. Melanogaster: position effect, gene expression on chemically defined medium.

Laszlo, Sylvia. B.A. Research Assistant, Department of Zoology. Melanogaster: gene expression on chemically defined medium.

Lower, William. B.A. Graduate assistant, Department of Botany; Graduate student, Department of Zoology. Pseudoobscura: population genetics.

Malloy, Joan. B.A. Graduate student, Department of Zoology. Melanogaster: allelic lethals in wild populations.

Mattoni, Rudolf H. T. M.A. Research Assistant, Department of Botany; graduate student, Department of Zoology. Pseudoobscura: population genetics.

Mitchell, Donald F. Ph.D. Department of Botany. Pseudoobscura: population genetics. (On leave with United States Navy.)

Seiger, Marvin. M.A. Graduate student, Department of Zoology. Melanogaster: cytology of allelic lethals of independent origin.

Silver, Elizabeth P. B.A. Curator of melanogaster stocks, Department of Zoology. Melanogaster: lethals.

Tinderholt, Victor. M.A. Graduate student, Department of Zoology. Melanogaster: chromosome breakage.

Madison 6, WisconsinUniversity of Wisconsin, Department of Genetics

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Morton, Newton. M.S. Graduate assistant. Population genetics.



Minneapolis 14, MinnesotaUniversity of Minnesota, Department of Zoology.Kroman, Ronald K. Graduate student. *Melanogaster*.

Merrell, David J. Assistant Professor. Population genetics.

Underhill, James C. Graduate student. Population genetics.

New Haven, ConnecticutAlbertus Magnus College, Department of BiologyCullen, Sister Mary Urban, O.P., Ph.D. Professor. *Melanogaster*: physiological genetics.New Haven 11, ConnecticutYale University, Osborn Zoological Laboratory

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Burdette, Walter J. Ph.D., M.D. Director of Research and Teaching in Oncology; Associate Professor of Surgery. Tumors, mutations.

Haddox, C. H., Jr. Ph.D. Research Associate. Mutations, gene action.

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New York 27, New YorkColumbia University, Department of ZoologyCooper, Donald. Postgraduate student. Population genetics and ecology, the role of different species of yeast in the diet of *Drosophila*.Dobzhansky, Th. Professor. *Pseudoobscura*, *persimilis*, *willistoni*, *prosaltans*, and other species: population genetics.Levine, Louis. Postgraduate student. *Pseudoobscura*: laboratory populations, heterosis.Lewontin, Richard C. Postgraduate student. *Pseudoobscura*: population genetics.Marien, D. Postgraduate student. *Pseudoobscura*: mechanisms of selection.

Moore, John A. Professor. Population genetics, species competition.

Pavlovsky, O. A. Research Assistant. Cytology, population genetics.

Pessoa, Oswaldo Frota. Research Fellow of the Rockefeller Foundation. Population genetics, selection, heterosis. (Permanent address: Centro de Pesquisa de Genetica, Universidade do Brasil, Rio de Janeiro.)

Prout, Timothy. Postgraduate student. *Melanogaster*: population and radiation genetics.Rosenbaum-Moos, Joan. Postgraduate student. Population genetics and ecology of *Drosophila*.

Spassky, Boris. Research Associate. Comparative genetics of species of *Drosophila*.  
Spassky, N. P. (Mrs.) Research Assistant. Population genetics.  
Vetukhov, M. A. Research Fellow. *Pseudoobscura*, *willistoni*, *paulistorum*: heterosis and hybridization of local populations of *Drosophila*.

Oak Ridge, Tennessee

Oak Ridge National Laboratory, Biology Division

Baker, William K. Ph.D. Radiation genetics, position effect.  
Edington, Charles W. M.A. Radiation genetics.  
Parker, Dean R. Ph.D. (Visiting investigator.) Induced crossing over and breakage.  
Schwartz, Drew. Ph.D. Mechanism of crossing over.  
Von Halle, Elizabeth S. B.A. Radiation genetics.

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Cooper, Kenneth W. Ph.D. Professor. Cytogenetics.  
Krivshenko, Jakov. D.Sc. Research Associate. Cytogenetics, especially of  
D. busckii.  
Zimmering, Stanley. Ph.D. Research Associate, and Visiting Instructor in  
University School. Translocations; segregation.

St. Louis, MissouriWashington University, Department of Zoology

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population genetics and ecology.  
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genetics; parthenogenesis.

Salt Lake City, UtahUniversity of Utah, Department of Genetics and Cytology

- Farnsworth, Philo. B.A. Graduate student. Melanogaster: reverse mutation.  
Lefevre, George, Jr. Ph.D. Associate Professor. Melanogaster: radiation  
genetics.  
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genetics.

Storrs, ConnecticutUniversity of Connecticut, Department of Zoology

- Chovnick, Arthur. Instructor.

Upton, Long Island, New YorkBrookhaven National Laboratory, Biology Department, 46 Bell Avenue

- King, Robert C. Ph.D. Melanogaster: mutation studies with radiophosphorus  
and thermal neutrons; phosphorus metabolism.

Urbana, IllinoisUniversity of Illinois, Department of Zoology

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Lichtwardt, Elizabeth Thomas (Mrs.) M.S. Graduate student. Salivary  
chromosomes.  
Luce, Wilbur M. Ph.D. Professor. Bar alleles, effect of environmental  
agents, radiation genetics, physiological genetics.  
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- Wilson, Louise Palmer. Ph.D. Associate Professor. Melanogaster: physiology  
of growth, emphasis on tumors.

West Lafayette, IndianaPurdue University, Agricultural Experiment Station

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Moore, Claude W. Ph.D. Assistant Professor. Population genetics, selection.  
Warren, Don C. Ph.D. Professor. Population genetics, selection.

West Lafayette, IndianaPurdue University, Department of Biological Sciences

Burdick, Allan B. Ph.D. Assistant Professor. *Melanogaster*: quantitative genetics.  
Hennen, Mary M. (Mrs.): B.S. Curator of Stocks and Research Assistant.

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Kurokawa, H. Japan, Tokyo  
Kutschera, Gertrude. Austria, Vienna

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Lefevre, George, Jr. U.S.A., Salt Lake City, Utah  
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Lenoble, E. France, Gif-sur-Yvette (Seine et Oise)  
Lestrange, M. de France, Gif-sur-Yvette (Seine et Oise)  
Levenbook, Leonidas. U.S.A., Philadelphia, Pennsylvania  
Levine, E. E. U.S.A., Cambridge, Massachusetts  
Levine, Louis. U.S.A., New York, New York  
Levine, R. P. U.S.A., Cambridge, Massachusetts  
Levitan, Max. Blacksburg, Virginia  
Lewis, D. Great Britain, Bayfordbury, Hertford, England  
Lewis, E. B. U.S.A., Pasadena, California  
Lewis, Herman W. U.S.A., Berkeley, California  
Lewontin, Richard C. U.S.A., New York, New York  
L'Héritier, Philippe. France, Gif-sur-Yvette (Seine et Oise)  
Lichtwardt, Elizabeth Thomas (Mrs.) U.S.A., Urbana, Illinois  
Lilly, L. J. Great Britain, Sheffield, England  
Lindsley, D. L. U.S.A., Columbia, Missouri  
Lockingen, Lloyd, U.S.A., Austin, Texas  
Loosli, Rolf. Switzerland, Zürich  
Lower, William. U.S.A., Los Angeles, California  
Luce, Wilbur M. U.S.A., Urbana, Illinois  
Ludwig, Wilhelm. Germany, Heidelberg  
Lüers, Herbert. Germany, Berlin-Dahlem  
Lüers, Thea (Mrs.) Germany, Berlin-Dahlem  
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Magni, G. Italy, Pavia  
Mainx, Felix. Austria, Vienna  
Makino, Sajiro. Japan, Sapporo  
Malloy, Joan. U.S.A., Los Angeles, California  
Malogolowkin, Chana. Brazil, Rio de Janeiro  
Manunta, C. Italy, Pavia  
Margolin, Jean (Mrs.) U.S.A., Bloomington, Indiana  
Marien, D. U.S.A., New York, New York  
Massie, Winfield. U.S.A., Blacksburg, Virginia  
Masui, K. Japan, Anjo-Shi, Aichi  
Mather, K. Great Britain, Birmingham, England  
Mather W. B. Australia, Brisbane  
Matthews, P. Great Britain, Bayfordbury, Hertford, England  
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Mohr, Otto L. Norway, Oslo  
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Monclus, Maria. Spain, Barcelona  
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Moriwaki, D. Japan, Tokyo  
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Okada, T. Japan, Tokyo  
Oksengorn, J. (Mrs.) France, Gif-sur-Yvette (Seine et Oise)  
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